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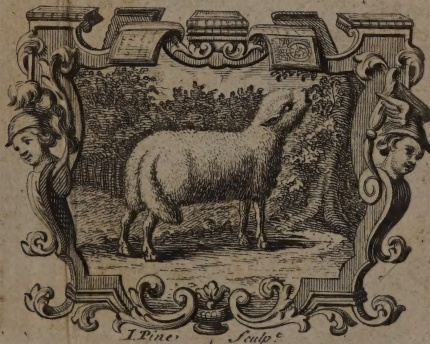
Written, in *Latin*,

By the late Learned Dr. JOHN FREIND.

Translated into *English*

By THOMAS DALE, M. D.

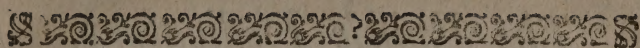
Nihil est malum, nisi quod turpe aut vitiosum est. Cicero.



L O N D O N :

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T O

Dr. *James Douglas.*

S I R,

WHEN I had finished the following Translation, the Subject naturally led me to inscribe it to You; it treating of those Disorders which are peculiarly incident to the softer Sex; among whom You have deservedly acquired such an established Reputation, by your Skill and Abilities for their Relief in an hour of the greatest danger and distress.

I am not ignorant how difficult a Task I assumed, in attempting to translate so masterly a Writer, who, by his elegant and polite Discourses has done Honour to our Country and Profession. I don't in the least imagine, that this Translation can aspire to any such thing, or pretend to flatter myself that it is spirited with the

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The Epistle Dedicatory.

various Beauties of the Original; it was my endeavour only to give the strict Sense of my Author, and render it into easy and intelligible *English*. Upon this consideration, I hope, my Labour will not be unprofitable, to those, at least, who have had the Misfortune to be but little acquainted with the learned Languages. Yet, lest the Subject in our Tongue should to some Persons appear disagreeable, I have taken all possible Care, throughout the whole Performance, to avoid any such Objection, by studiously retaining the *Latin* technical Terms.

Having mentioned the Beauties of the Original, give me leave, Sir, to observe one thing; that however some Foreigners may pique themselves upon their elegant *Latin*, and foolishly wonder how a Man, born upon this Island, can possibly acquire such an Excellence: yet, since our Author has sufficiently answered that unmannerly Reflection, in advising them to correct their own Writings, in that Language,

The Epistle Dedicatory.

guage, by those of our Countryman *Linacre*, and given them an Instance in his own Performances of our attainments that way, let them forbear their vain Boastings and Invectives, till they can produce greater Masters, than either the one, or the other.

I am unwilling, Sir, to follow the usual Method of Dedications, or enter into a Detail of those Improvements in *Anatomy* and the *Materia Medica*, which are owing to your indefatigable Application. He must be little conversant in the former of these Studies, who is ignorant that it is owing to your Diligence and Discernment, that we can form a true Idea of various Parts of the Body ; and that from your curious Preparations we were first taught to form a right Notion of the *Peritonæum* ; a discovery of the greatest Consequence and Importance in several of the grand Operations. This is but one of the many Instances, which might be produced, were it proper or necessary to crowd them into the compass of this Dedication. Neither is your Dexterity in dissecting,

The Epistle Dedicatory.

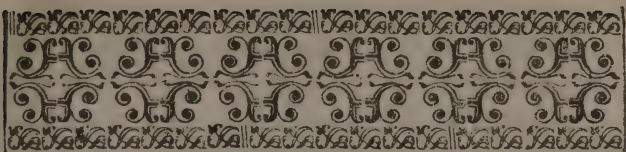
fecting, confined only to Animals, but has been happily applied to the vegetable World, as the curious History of the beautiful *Guernsey Lily*, with which you have already obliged the World, and those of our *English Saffron*, and the *Ipecacuana*, which you are about to publish, together with your other accurate Labours, will abundantly evince. Thus zealous for the good of Mankind, no Moments lie Idle upon your Hands, but, notwithstanding your daily Employ in administering Relief to the Distressed, and endeavouring to rescue Fellow-Mortals from a Bed of Languishing and the Grave, you still generously labour to give others those new Lights and Assistances, which have made Your self so useful and valuable to the Publick. I am,

S I R,

Your Obliged,

Humble Servant,

THOMAS DALE.



THE
PREFACE
OF THE
AUTHOR.

Wretched surely and unequal seems the condition of the Female Sex, that they who are by Nature destined to be the Preservers of the human Race, should at the same time be made liable to so many Diseases. For whatever Course of Life they pursue, few there are, who enjoy an Health untainted and exempt from Pain: for if they enter into a wedded State, even from that source of Pleasures something bitter arises, and Pregnancy brings with it at least a length of loathing, if nothing more calamitous; if they make a Vow of Celibacy, with all their precaution they will hardly be able to avoid labouring under some Distemper, even upon that very account, because they are strangers to a Mother's Pangs.

THE PREFACE

Pangs. For that supply of Blood which Women ought to collect for the use and aliment of their Offspring, if it either inwardly encrease, or flow something immoderately, excites a thousand Disorders in their tender Frame. So artificially indeed is a Woman formed, that at some stated Seasons that redundancy of Blood may be discharged: however an infinite number of Accidents happen daily, which interrupt this salutary work of Nature; so that Art must be called in for relief, lest, through the defect or irregularity of this Evacuation, such Disorders should occur. Which, since it is a sort of Handmaid and Servant to promote and dispatch Nature's Work, if any obstacle should intervene, unless it accurately understands the manner of acting that Nature makes use of, will be so far from yielding any assistance, that it will greatly obstruct its endeavours. But the Path of Nature being investigated, if at any time Art would persue and imitate it, it will not wander to and fro at random, but push directly towards the Goal.

In this Enquiry indeed, which we are now attempting, no less useful than agreeable, the Wits of almost every Age have toil'd: but as there is hardly any Argument, on which Physicians have wrote more; so is there no one, in which they have given less satisfaction to their Readers. But why Men so well qualified for this Task by their Learning and Study should so unhappily succeed in it, I can find no other Cause, than that they followed the most abstruse and most hidden
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Principles; while they either did not see or perhaps despised those which were more simple, and which lay as it were at their Feet. Thus, since, being led away by their fancies, they dwelt upon things so extreamly obscure, it is no wonder, if they proved rather Interpreters of their own Dreams than of Nature. He will easily perceive this, who will take the pains to revise those Authors, who have wrote of the Menfes even to satiety; who generally indeed explain the nature of the Menfes by those reasonings which ought themselves to be explained, yet can by no means be so. Such are the fictions of those, who deduce the Menfes from the Phases of the Moon, or Archæus, or a certain Fermentation. But if we should faithfully trace the Footsteps of Nature, she will willingly disclose herself; nor ever will the Mechanism of the human Body be so happily known, as by consulting those Laws, which Nature has prescribed to Mechanick, h. e. her own Motions. For upon these Principles only ought the true Foundations of Philosophy to be supported: upon which whatever superstructure is raised, it will not only by its simplicity excite the Study of the Reader, but also by its evidence force his assent.

It is to be lamented indeed that the Theory of Physick, which in many cases may be explained with the same certainty as Geometry, should, as it is usually handled in the Writings of Authors, appear not only conjectural, but also absurd; in which indeed those Hypotheses, which are framed of the Causes of Diseases, approach

THE PREFACE

proach so little towards the severer Rule of Reason, that it is well, if they are not plainly repugnant to Sense. There are many things, which have polluted this genuine Fountain of Physick, yet nothing has more thoroughly defiled it, than that vile abuse of Chymistry, which has for some time crept into the healing Art: abuse, I say, because if Chymistry was confined within proper bounds nothing would be more serviceable to Mankind, nothing would either sooner, or more efficaciously drive away Diseases. For Its province is to enrich the Practice of Physick with Medicines elegantly compounded, and as it were contracted: but if Chymistry should launch out farther, and accomodate its Principles to the Theory of Diseases, it will mislead some Men otherwise Ingenious, and delude them with a vain appearance of Science. For what can those Principles avail, either towards rightly explaining the Causes of Distempers, or happily removing their Symptoms, which are so far from being any, that perhaps they have place only in the imagination of Philosophers, yet by no means exist in the nature of things? Of which even the very Patrons of this Opinion are not yet agreed. But how fictitious soever may be the Elements of the Chymists, yet by abundance are they applied towards illustrating the knowledge of Diseases: but with such success indeed, that Chymistry has not been more useful to the Practice of Physick, than detrimental to the Theory. Thus has Chymical Philosophy, as it has hitherto been managed, obscured an Art of itself very rational: though

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of the AUTHOR.

at the same time a thorough knowledge of it might be so advantagious to Physick, that if it was reduced to Mechanick Reasonings, (which we may hope will be done some Time or other) there is nothing, which seems to be of more service even in illustrating the Theory.

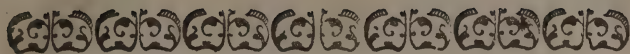
But the ingenious Bellini has at last restored this Knowledge of Diseases, so greatly corrupted, and almost extinct: who has indeed introduced into Physick a more sound way of reasoning, drawn from Principles of Mechanicks and Anatomy. He has given such a light into a useful Theory, which has also excited some Men of excellent Abilities to this Study; and, if we may be allow'd a Conjecture, will be an happy guide to the attempts of Posterity. For from hence only is both the true Cause and Indication of Diseases to be investigated: for these Principles are found to be not only certain and very agreeable to Nature, but also extremely easy to be understood. It were to be wished that our Physicians would undertake this Province, to whom in Physick, even Foreigners themselves, willingly resign the Prize; and that England would maintain that Reputation, in cultivating also the Theory, which it has deservedly obtained in the Cure of Diseases. For such a Theory we want, which may be deduced from an happy Practice, and also accommodated to it: which since it has been hitherto almost naked, and described only in a Philosophical manner, is at this Time, perhaps, less esteemed; while those, who are little acquainted with the manner, in which the Elements of Mechanicks

may

The P R E F A C E, &c.

may be applied to Practice, imagine indeed that they can by no means be applied at all.

But if the Theory of Physick may be justly drawn from these Elements of Mechanicks, the Cause certainly of Diseases in Women, if any other, is not so difficult, but it may in great part, at least, be explain'd and illustrated. And, indeed, no Subject better deserves our Pains, than that we should find out the most certain Remedy for those Disorders, which, since they excite the most grievous Complaints in the Women, ought also to excite in us, who study Humanity as well as Physick, a no less vehement desire of curing them. But since almost all the Distempers, with which the Women are afflicted, are derived, as Hippocrates well observes, from some irregularity of the Menses, I shall not appear to have employed my Time ill, in endeavouring to set the Nature of the Menses in a clearer Light, than I find it hitherto done by Authors. In which Performance the Reader will find nothing abstruse, nothing far removed from common Sense: inasmuch as it has been my only Care to find out the Truth, as much as possibly I could; which, the more obvious and familiar it is, is generally the more acceptable.



A N

I N D E X

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CHAP. I.

Of the nature of the menſtruous Purgation.

THE *menſtruous* Purgation, or a flux of Blood iſſuing from the *Uterus* every Month, uſually begins its Periods at the *ſecond* *Septenary*, and terminates at the *ſeventh*, or the ſquare of the number Seven: This is the common way of reckoning, becauſe there are ſome Women in whom this Flux begins later; a few too whom it invades much before the fourteenth Year; again, there are others whom it forſakes not at the forty-ninth; beſides the relations we have of Women altogether free from it.

The quantity of the evacuated Blood is different according to the variety of Conſtitution, Diet, Age, or the like; yet in healthy and adult Perſons it commonly amounts to twenty Ounces, which agrees with the meaſure aſſigned by *Hippocrates*, namely two *Hemina's*^a. Nor is the difference leſs with reſpect to the Quality; for ſometimes the menſtruous Humour approaches nearer to Lymph than Blood;

but in healthy Women it is found very ruddy and florid, resembling (according to the same *Hippocrates*^a) the Blood flowing out of the Veins of a Sacrifice newly slain. Which however is sometimes so vitiated, as to be almost ranked among Poysons; but this is not owing to any ill quality of its own, but the mixture of some Filth, or Contagion otherways contracted. If any one entertains a different Opinion, let him consult the Writers upon this Subject.

There is the same Inconstancy in regard to the Periods, these happening sometimes on the twenty-seventh Day, or the twentieth, nay, sometimes twice in a Month, as *Duretus*^b has observ'd, in Women of a warmer Constitution, and that too sometimes without any injury to the Health^c. Lastly, It happens that the Period returns not even once in a Month; which however most frequently recurs monthly. The same may be said with respect to the duration of the Flux; for in some it continues three Days, in others four, and in others six; however, for the most part it is finished on the third^d.

We shall have an opportunity of considering all these Phænomena hereafter; at present we must treat only of those things which usually happen just before the flowing of the Menfes. At the approach of the Flux, especially in Girls who have never yet had the Menfes, these

^a *Ibid.* ^b *In Holler.* 255. ^c *Panarol. Cent. 2. Obs. 41.*
Med. Septentr. p. 33. ^d *Hipp. de Morb. Mul. 1. S. 15.*

Symptoms are particularly observed : *A Pain and Heat in the neighbouring Parts, especially about the Loins and Hips ; sometimes also an Inflammation, pain in the Head, loss of Appetite, and weariness of the Legs ; during the Flux there often happens a Nausea and Faintness.*

In *bilious* Constitutions the *Menses* flow something earlier, and finish their Periods sooner ; but in Girls of a more delicate and less sanguine Habit they break forth later. So that in warmer Climates they arrive a Year or two before the second *Septenary*, and in the colder they exceed it. In pregnant Women, and such as give Suck, they are for the most part wanting ; especially after the third or fourth Month of their Pregnancy. They return difficultly and but very slowly to Women recovering from a very long Illness. In dainty and luxurious Women, the Flux is often continued beyond the sixth Day ; but is terminated sooner in those of a grosser Habit, and in those that use a slender Diet, or much Exercise. The Quantity of the evacuated Blood encreases to the *Flower of Age*, at that time of Life it remains the same ; and Age again declining it is gradually diminished. The Blood is found thinner in younger Women, but thicker in those who are more advanced in Years.

The Reason of this Variety, will be explained in that Discourse of the Periods, which we shall presently deliver.

CHAP. II.

The various Opinions of Authors concerning the Menses.

BOTH the antient and modern Physicians have endeavoured to investigate, and deliver'd to us in their Writings the Causes of this Flux, which resembles the Ocean in its ebbing and flowing at a certain Season: It would be endless to recount their several Opinions; it will be sufficient to deliver only the Heads of their Arguments, that if their Sentiments should not please us, we may see, if any thing more apposite can be invented.

In investigating then the Causes, some assign a *final one*, others an *efficient*, some *both*, as *Galen*.

The final Cause of the Menses, is agreed by Authors to be, either to render Women more apt for Conception, or to afford Nutriment to the Foetus. Those, who embrace the former Opinion^a, assert the menstruous Flux to be necessary upon the following Account, that the Blood being purged from any filth or dregs, may both the more forcibly excite the Women to Coition, and also more happily receive the Seed. This Argument is easily answered; for in healthy Persons, that Blood which is ejected, is not at all impure or tainted, but very good and fragrant: In as much as it is not secreted

^a *Charleton, Sylvius*

by the help of any Gland, but breaks forth from the Capillary Arteries, and therefore retains the nature of the Arterious, *i. e.* the *most pure* Blood. But if this monthly Purgation were necessary for the promoting of Conception, certainly no Women would Conceive, but those who have undergone it; which is indeed wholly repugnant to Experience and the History of Physick^a.

The latter of these final Causes is asserted by *Galen*, with whom almost all Authors agree; however there are some, who maintain a contrary Opinion, and insist chiefly upon the two following Arguments against *Galen*.

1. They affirm that not a Drop of the Mother's Blood is carried to the Foetus; because there is no Anastomosis between the Uterine and Umbilical Vessels: And that the Foetus is not nourished by the Blood, but by a Milky Juice, which it receives at the Mouth^b: They who assert this, may with as good Reason affirm, that Infants receive no Aliment from the Mother's Blood, because they are nourished with Milk, and not Blood. But from whence should that very Milk be supplied, unless it be carried to the Breasts from the Stock of maternal Blood? Now the same reasoning holds good as to the nourishment of the Foetus; for if the Foetus be nourished by the maternal Blood which is carried thro' the uterine Arteries, or

^a *Hild.* l. 5. *obs.* 41. *Bonet. Med. Septentr.* p. 30. *Sennert.* tom. 3.
^b *Charleton de Catamen.* p. 36. & 43.

by that Liquor which is contained in the *Amnios*; it is very manifest either way, that the Mother's Blood serves to nourish the Offspring: for what other origin will he find out for this Liquor, who denies it to be derived from the maternal Blood? so that if it should be granted that the Foetus is nourished by the Mouth, the Nourishment, whatever it be, must be sought for from the Mother. But that the Foetus is not wholly nourished by the Mouth, is sufficiently proved by monstrous Births without Heads, and some Infants who have no passage at the Mouth and Nose: The Physicians Skill in *Anatomy* has advanced still further, and very clearly evinced that the Foetus is nourished with the Mother's Blood, by means of the Placenta. For it has clearly proved that *Anastomosis* (which some deny^b) between the uterine and umbilical Vessels: for when the Ovum has fluctuated in the Uterus for a Week or two, and been soften'd and moisten'd by the uterine Lymph, the stamina of the *umbilical* Vessels break forth immediately from it, after the same manner as the Fibres spread themselves every way from Seed thrown into the bosom of the Earth: these insinuate themselves so into the inner Coat of the Uterus, that the umbilical Vein penetrates the hypogastrick Arteries of the Mother, and the umbilical Arteries are inserted into the Mother's Veins. By these Passages a perpetual circulation of the Blood is

^a *Columb. Anatom. p. 460. Casser. Placent. Tab. 5.*

^b *Wharton, Charleton.*

carried on between the Foetus and the Mother; the umbilical Vein receiving the arterious Blood from the Mother, which it carries to the *Vena cava*, and so to the Heart, for the use of the Foetus; in like manner the umbilical Arteries return that Blood which is not proper for nourishing the Foetus into the Mother's Veins. But if no Nourishment should be afforded by these Vessels, the Foetus would not only be deprived of its Sustenance, but the Membranes themselves, in which it is enveloped, could by no means receive any Nourishment.

2dly, They deny the *final* Cause of the menstruous Blood to be, its yielding any nourishment to the Foetus, *because the quantity evacuated in the space of nine Months seems too small, to be sufficient to sustain it* ^a. But whether it may suffice or not, we may learn from the following Calculation. In healthy Women the menstruous Blood is discharged to 20 Ounces, therefore the quantity discharged in nine Months will be 15 *lib*. but because it sometimes happens, that the *Menses* flow even in breeding Women, at least for the three former Months, altho' in a much lesser Quantity, we may suppose the Quantity of evacuated Blood to decrease in that Proportion, that in the first Month an half or 10 Ounces may be discharged, in the second $\frac{1}{2}$ or $36\frac{2}{3}$, in the third $\frac{1}{4}$, or 35 , and that afterwards there is a total Suppression: then subtracting $321\frac{1}{3}$ out of 15 *lib*. the remaining quantity of Blood which the Mother

^a Bayle dissert. de Mensib.

may bestow upon the nourishment of her Offspring will be *lib.* 13 $\frac{1}{3}$ 2 $\frac{1}{3}$, which will outweigh the new-born Fœtus with all its Inguements, if they should be put into a Balance; and leave no room to doubt, its being able to bestow very proper nourishment on the Embryo. For the mean weight of a new-born Fœtus is about 12 *lib.* sometimes it is found greater, and very often less. But if the Menfes should be suppressed in a breeding Woman, the 15 *lib.* are sufficient for the nourishment of the Fœtus; but those Women in whom the Flux exceeds 20 Ounces, as it often happens, will easily supply the Fœtus with nine Months Nourishment, altho' it should be a Monster.

I do not see therefore, why we should depart from *Galen's* Opinion, who lays this down in his medical Definitions^a; *The Menfes are given to Women, that they may be evacuated for their Healths sake; and yield Nourishment to the Embryo, when suppressed by Conception.* Which Words, if they be rightly understood, are very consonant to Truth. For that Question which is much canvassed among Writers, *Whether the Fœtus is nourished by the menstrual Blood*, is very ridiculous, and repugnant to good, *i. e.* *Galen's* Sense: As if he could ever imagine the Fœtus was nourished by that very Blood which is thrown forth: Or that he should not rather suppose, that the Blood was

^a Τα κατὰ μιλία παρέχει τῇ γυναικὶ πρὸς ὑγίαν ἐκτρέφειν. ὁπρὸς δὲ τὴν διὰ τὴν σύλληψιν, τῷ ἐμβρυῶν τὸ ἐκτρέφειν. *Galen. Defn. Med.*

redundant in Women, that it might be sufficient to nourish not only their own Bodies, but also afford Sustenance for their Offspring; that therefore it was evacuated every Month by the Uterus in Women that were not breeding, because it was redundant: for we shall see presently that *Galen* did not suppose the Menfes could flow, unless there was an overcharge of Blood.

Nor is there a less Variety of Opinions among Writers concerning the efficient Cause of this Flux: While some imagine it to be the *Moon*, others a certain *Ferment*, and others again will have it to be a *Pletthora*. We shall say something of each of these Opinions, that we may see, which of them is the most agreeable to Truth.

And 1. They who fetch the Cause of the Menfes from the *Moon*, are all of them led away with this one Argument, that the Period of this Flux answers the Moon's Courses, and that therefore it is directed by its Influence: Which Argument may be easily and briefly refuted, by replying that their several Periods do no ways agree, in as much as these oftner recur at the beginning of the Month, than at the latter end. But if the Moon influenced this Flux, all Women in the same Climate, of the same Age and Constitution would have their Menfes in the same turns, and at the same Season: Which is so far from being true in Fact, that it is really impossible to be so.

2. Some of the Moderns^a deduce the Cause of the Menstrua from a certain Ferment; which indeed, tho' it be clouded by another Word, is the same as the *Fervor Uterinus* of *Democritus*: They imagine indeed the monthly *Colluvies* to be purged off at the *Uterus* by the means of a *Ferment*, which *de Graaff* thinks diffused thro' the whole Mass of Blood, but *Bayl* asserts it to be peculiar to the *Uterus*: They both pretend that this Ferment is seated in some certain Salts, which by their Motion so exagitate the mass of Blood, that at some certain Seasons, namely, every Month, it is thrown into a vehement Effervescence, and seeks a Passage by the uterine Vessels. How this Fermentation is performed, or why it exerts itself at these Periods; these Gentlemen give their Readers very little Satisfaction in their Arguments, but endeavour to impose upon 'em by Words. For the Opinion of those Persons who attribute a proper ferment to each Viscus, is not only repugnant to the circulation of the Blood, but also to common Sense. For where does that Ferment lie hid, or where is it so securely lodged, as not to be disturbed or drawn off by the passing Fluids? But suppose we allow this *Ferment a seat in the Viscera*, whence is it thus largely supplied, that it cannot be exhausted by perpetual Discharges? Certainly it should stand in need of some fresh supply, lest the Fermentation in time should be totally destroy'd. The other Opinion about Ferments,

^a *Graaff. Bayl. Etmuller.*

namely,

namely, *that the whole Mass of Blood ferments*, is equally foreign to the Truth: For if we explain *Fermentation* according to the Sense of the Chymists, namely, *a mutual Action of Acid and Alkali*; or if we take it in a larger sense, and it should signify *an intestine Motion of the Parts*^a, it can neither way be applicable to the Blood: Not in the former sense, because there is no ^b Acid in the Blood: Nor in the latter, because the Parts of every Fluid, which lie under the same horizontal Planes, are *equally* pressed, and therefore are determined to *Rest*, unless they are put into Motion by some new Impetus. If then any *intestine Motion* in the Blood should be granted, it would in a short time be stopp'd, unless it were excited and renew'd again by that Liquid, which is thrown into it from the Heart: But if an *intestine Motion* should arise from that Liquid, which flows into it from the Heart, it is very plain, there can be no other Motion in the Blood than that, by which it continually moves forward and is circulated.

But that absurd Doctrine of Ferments is at this time almost wholly rejected, and has been long since exploded by Writers of the best Sense. But if *Ferments* carried any shew of Reason with them, they ought to be explained after this manner; namely, that there are Glands situated in the Uterus, in which a Liquor or certain *Ferment* is secreted, which is carried into the Blood only every Month, and by rarefying and throwing it into a brisker Motion,

^a Willis de Febrib.

^b Boyle. Pitcairn.

and

and strongly distending the Canals of the Uterus, opens a Passage for the *Menses*. But this Ferment is thrown forth only once in a Month, because the Orifices of the excretory Ducts are so slender and narrow, that it can force its Passage only by the weight of that Quantity, which is secreted in the space of a Month; after the same manner as is done in the *Testicles*. This Hypothesis, however at first sight it may carry with it an Air of greater Probability than the rest, is however as far distant from the Truth; inasmuch as the same Argument holds good against all the hypotheses of *Ferments*; namely, that if the *Menses* are excited by a *Ferment*, and not a *Plethora*, such a quantity of Blood would be thrown forth in a short time as would extinguish even Life itself. *Charlton* contends fiercely against *Ferments*, in his Book *de Catameniiis*, and has sufficiently overturn'd *Bayl's* Opinion; nevertheless, in delivering his own, he borrows that whole Argument from *Bayl* himself, and expressed almost every where in the same Terms, which in the foregoing Pages he had rejected and refuted.

3dly and lastly, *Galen* in his Book of *Bleeding* against *Erasistratus*, attributes the origin of the *Menses* to a *Plethora*, ^a Does not, says he, Nature herself cause an Evacuation in all Women, by throwing forth every Month the superfluous

^a Οὐχ αὖτις (ούσις) γυναίκας μὴ ἀπίστας ἐφ' ἐκάστῳ μηνὶ κινεῖ, τὸ πεισθὲν ἀποχέουσα τὸ αἷμα; ἔδει γὰρ, οἶμαι, οἴκοι τὸ θῆλυ γένος ἔτε ἰσχυροῖς πόνοισι διακτώμενον, ἔθ' ὁμιλεῖν ἡλίῳ καὶ αἰθέρι, καὶ δι' αὐτῶν ταῦτα πλεῖσθαι ὑπερέρχον, αἷμα φυσικὸν ἔχειν τὸ πλεῖσθαι τὸ κένον. *Galen. adv. Erasistrat.*

Blood &

Blood? I imagine that the Female Sex, inas-much as they heap up a great quantity of Hu-mours, by living continually at home, and not being used to hard Labour, or exposed to the Sun, should receive a discharge of this Fulness, as a Remedy given by Nature. Many since Galen have embraced this Opinion; however they have explained it so very indifferently, that it does not clearly enough appear, either from what Causes a Plethora should occasion the Menses, or what is the true Cause of that very Plethora in Women. Therefore, because we entertain some hopes that the Nature of this Flux will more manifestly appear after a right explication of these Things, we shall enquire in the first Place, whence the Plethora takes its rise, and how it encreases in Women; then by what Powers, and chiefly by what Cause it discharges the Blood thro' the uterine Vessels; to which, in the last Place, we shall add some Arguments, by which the periodical Return of that Flux will be in some measure explain'd and illustrated.

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### CHAP. III.

*Of the Causes of a Plethora, and why it happens in Women.*

**T**HAT we may the more certainly inve-stigate the Causes of a Plethora, let us lay down these Premises.

1. That

1. *That every Body remains in the same State, if the Evacuation be equal to the Addition, & vice versa.*

2. *That if any eruption of Blood happen to any Animal periodically, and the same State should return after the Eruption is over as was just at the beginning of the Period, so that the Animal be neither more or less ponderous, then there was a Plethora in that Animal before that Eruption: and farther, that all Evacuations made before the Eruption were unequal to the addition, but equal if taken together with the flowing Blood.*

These things are sufficiently plain of themselves, inasmuch as the only Measure by which the quantity of any Matter is determined, is the *Pondus*. If then the *weight* of any Body remains the same, the *quantity of matter* must likewise do so too; or what is the same thing, as much as is added to a Body, so much also is taken away from it, but if less be taken away than is added, the weight of the Body will encrease, and therefore the quantity of Matter will be greater; which if encreased after this manner it should be accumulated in the Blood Vessels, and not diffused into the Habit of the Body, a *fulness* of Blood will be brought on, until there shall happen an Eruption. And this very Eruption returning periodically demonstrates, that the Blood is not spent upon the Flesh, but heaped up within the Vessels.

In whatever Body then such a *Plethora* arises, that it may be necessary that a Diminution of the redundant Matter be made at certain Periods,

it is very plain, that all the evacuations which are made in the intervals of the Periods, were less than the quantity of Matter thrown into the Body: but if the Body, after this periodick Diminution, be reduced to the same State which it enjoyed at the beginning of the Period, it plainly follows that this last Evacuation, conjoined with all the intermediate ones, must be equal to the quantity thrown in during the whole Course of the Period.

And thus far indeed have we proceeded not so much upon conjecture, as demonstration.

That we may therefore accommodate all these things to our Purpose, we may conclude from very certain Principles, that when a Woman obtains the same State of Body, after the Menses are over, as she enjoyed at the beginning of the menstruous Period, (which is confirmed by Experience) the other Evacuations in that Person were not equal to the Nourishment taken in during the Course of that Period: in like manner, because these were unequal, that the nutritious Juice was redundant in the Body; which if it be confined within the Course of the Circulation, will bring that Plethora on the Blood for which we are contending.

But it is proved as well from Sight, as from Staticks, that Women enjoying a perfect Health, continually remain in the same State; in whom hardly any change of weight is perceived after they have arrived to a perfect Stature, if so be they observe the same Method of Living, and the same regard be had to what are termed  
the



the *Nonnaturals*. But lest we should seem to go too much out of the Way, let us descend to some mean, not to say very small Space of Time; and we only beg it may be granted us, that an healthy Woman, and one who has her *Menses* regularly, remains the same for the Space of five Years: if this be granted us, it follows from the first *Premise* that all the *Evacuations* performed in that five Years space, were answerable to the quantity of Aliment; among which *Evacuations* however the *Menses* must be numbred: But if the other *Evacuations* do not answer, after the subtraction of the *Menses*, it follows from the second *Prem.* that there was a *Pletkora* in that Woman before the discharge of the *Menses*.

Another Argument why the other *Evacuations* do not amount to the quantity of the Aliment taken in, may be drawn from the *Menses* themselves; for if they did amount to it, the menstruous Discharge ought not so much to be reckon'd a salutary *Crisis*, as a *Disease*; and the unhappy Women would needlessly discharge in the space of five Years, an hundred Pound of pure Blood, as is demonstrated in the preceding Chapters; or, what is the same thing, they would lose an hundred Pound of their Weight. Therefore they would be so far from enjoying an healthful Body, that in that time they would hardly have any Body at all.

In like manner we may as certainly conclude, that the Secretions in other Animals answer the quantity of Matter taken in; because when they

have

have once attained their full growth, they remain altogether in the same state; and because there is the same Proportion of Evacuation and Addition, that therefore in them there is no *Plethora* accumulated, and farther that they cannot be subject to a Flux of the *Menses*, because these are not caused without a *Plethora*. We may perhaps give another Reason in the following Pages, why the Brutes are not obnoxious to a menstruous Flux.

It has been very clearly shewn that there is a *Plethora* in Women; but from what Causes this Redundance is brought about, or, what is the same thing, why the Evacuation of the whole Aliment should be deficient in them; this too if I can explain, I shall seem to have done justice to my Argument.

We shall prove then by the following Arguments, That Perspiration (for by this Secretion the far greater Part of the Aliment is dissipated) is *less* in Women.

The first is, the *weakness* of the Sex, as has been observed by the accurate *Sanctorius* <sup>a</sup>; and this indeed *Hippocrates* <sup>b</sup> seems very justly to deduce from their more delicate Texture; for by how much more solid the Parts are, so much the more strongly is the Body compacted. But whatever may be the Cause of this weakness, it is plain that the Women are weaker than the Men; which is also very manifest even from the Pulse. For a Woman's Pulse is generally termed *languid* if compared to a

<sup>a</sup> *Med Stat. f. 1. 52.*

<sup>b</sup> *De Gland. f. 11.*

Man's; which has also been remarked by *Galen*<sup>a</sup>; besides the most certain Tokens of *Strength* are to be taken from the Pulse. For what is *Strength*, but that Force which is derived to the Members from the Blood and Spirits? and how can that be derived, if the Heart, by whose Motion alone the Blood and Spirits are directed, be not very forcibly contracted? But if the Contraction of the Heart be very powerful, the *Pulse* also must by all means grow the *Stronger*. Whoever doubts of this, may as well doubt, whether there be any *Pulse* or not. But to return to our Subject, from what has been said, *Sanctorius's Aphorism* may be demonstrated: for the weaker the Pulse is, a lesser quantity of Blood will be carried to the Glands, not only the intercutal ones, but to all the others in a given Time; and therefore there will be a lesser Secretion of Humours: even that very Humour which is secreted cannot be so readily and forcibly discharged from the Fibres, whose tension is the more remiss, upon the account of that *weakness*, which we have now explained.

In like manner, from this *weakness* will arise a defect in the Perspiration; but if the *Orifices* of the *Vessels* be much smaller in Women than in Men, (which perhaps is not repugnant to Reason, because both their Frame is more finely and delicately put together, and their Bulk always more contracted) the second Argument will also make for our purpose; because there

<sup>a</sup> *De Caus. Puls.* 3. 2.

will be a less supply of Liquids flowing into the secretory Vessels. For the Secretion is, as the velocity of the Blood, and the Orifice of the secretory Vessel; as has been demonstrated by *Bellini*. And therefore, by reason of the smaller velocity of the Blood, which is known from the Pulse, and the streightness of the Capillaries, which also seems probable from their delicate Texture, there will be a lesser Secretion of the perspirable Matter in Women.

2dly, The *Temperament*, which *Hippocrates*<sup>a</sup>, with good reason, affirms to be *moister* in Women than in Men. For the Bodies of Women, are much more soft and tender both to the Touch and the Sight than those of the Men; from which softness of the Parts that same Author very justly deduces<sup>b</sup> *a Redundancy of Moisture*: for the more solid the Parts are, so much the more a fluid abounds in them<sup>c</sup>. But in Men, by how much more firmly the Body is compacted, so much the less Fluidity is there left; for the bulk of the solid Parts, can by no means encrease, unless the quantity of Fluids be diminished. Therefore the Women in proportion to their bulk have more Blood than the Men. And for this reason it is, that they sooner arrive to their full growth; because the quantity of Liquid, of which the solid Parts are made up, is more plentiful in them: so that in a less time an equal quantity, or in an equal time, a greater quantity of Nutriment may be thence

<sup>a</sup> *Nat. Puer. f. 6.*  
*Gland. f. 11.*

<sup>b</sup> *Morb. Mul. i. f. 11.*

<sup>c</sup> *De*



drawn, as *Hippocrates* <sup>a</sup> argues, and *Pitcarn* has shewn more at large. Since then the Women enjoy this Temperament, the forementioned Author justly infers, That the *Moisture in them is not diminished*; because they are of a finer Texture<sup>b</sup>. It is likewise plain from *Sanctorius's Staticks*, that *moist Bodies perspire less*, and that plentiful Nourishment is an hindrance to insensible Perspiration. Upon the same foundation is that Aphorism supported, <sup>c</sup> *That insensible Perspiration is impeded by drinking of Water*. In like manner *Hippocrates* tells us <sup>d</sup>, *That Women of a watry, i. e. of a very moist Habit are subject to a longer Flux of the Menses*.

3dly, *A Life spent at Home, and not much inured to Labour*: and therefore *Galen* justly concludes, That a *Plethora* takes its origin from hence, as does also that excellent Interpreter of Nature *Hippocrates* <sup>e</sup>: For, as *Sanctorius* remarks <sup>f</sup>, *Bodies become lighter by Exercise*, “ inasmuch as all the Parts, the Muscles especially and Ligaments, are purged from any “ Excrements by Motion; the perspirable Matter is prepared for Exhalation, and the Spirits become more subtle.” Therefore whatever superfluous Humour there may be, it is the more forcibly thrown forth; for *Hippocrates* <sup>g</sup> has very well remarked, that *any Humidity is carried off by Labour*. But, on the

<sup>a</sup> *Morb. Mul.* 1. f. 11.  
f. 3. 67.

<sup>d</sup> *Epid.* 6. 1.

<sup>g</sup> *Morb. Mul.* 1. 11.

<sup>b</sup> *De Gland.* f. 11.

<sup>e</sup> *De Gland.* f. 11.

<sup>c</sup> *Med. Stat.*

<sup>f</sup> S. 5. 9.

other hand, the Body becomes the heavier thro' too much Rest, and there is a *redundancy* of Humours within the Vessels, upon the account of the retained Perspiration : Therefore the same *Sanctorius* rightly teaches us, that *Perspiration*, when it is defective in healthy Persons, is made up by Exercise<sup>a</sup>.

Perhaps some one will inquire, Why I contend for a smaller Perspiration in Women, since we may observe, that they generally sweat as profusely as the Men. But if any one doubts this, he may learn from *Sanctorius*<sup>b</sup>, that there is so little an agreement between *Perspiration* and *Sweat*, that they have hardly any thing in common ; that, on the other hand, the more this is promoted, so much the more is the other diminished. It is evinced both by Reason and Staticks<sup>c</sup>, that the Perspiration becomes languid for some Hours, nay, perhaps for some Days, at least if a Sweat something too profuse has preceeded.

It may easily be objected to the last Argument of an idle Life, that there are many Women indeed accustomed to Labour, who are not therefore exempted from the Menses. But the Reader will remember, that Sloth is not the only Cause of a menstruous Plenitude ; and that however the Woman may inure herself to Labour, she still carries about with her, her moist Temperament and weakly Disposition. But if an athletick Life and a dry Constitution happen to any one, it may perhaps be doubted, whe-

<sup>a</sup> S. 5. 34.<sup>b</sup> S. 1. 12, 13, 23, 110.<sup>c</sup> S. 5. 3.

ther that Woman will be subject to the *Menstrua*. The observations of Practitioners certainly make much for my side, That those Women in whom the *Menses* have been found wanting, were *Virago's*<sup>a</sup>, of a very hot Constitution; who, since they approach near to the *masculine Robustness*, and are very much accustomed to Labour, easily digest all their Aliment, and discharge it thro' the Pores<sup>b</sup>. Therefore *Galen* observes<sup>c</sup>, that there is a stronger *Pulse* in these Women. In like manner *Sennertus* writes<sup>d</sup>, That *Dancers* are destitute of their *Menses*: And *Forestus*<sup>e</sup> has observ'd the same of *Singers*: Which is also confirmed by Experience. Exercise indeed causes that the Evacuations in these several Persons answer to the quantity taken in; and that therefore there is no want of a monthly Discharge.

But whatever Cavilling there may be about the Causes, the Thing itself is certain. A Plethora being then demonstrated, it will not be very difficult to explain, by what Powers, and chiefly by what Cause the Blood is discharged thro' the uterine Vessels.

<sup>a</sup> *Plater. Obs. Med. p. 247.*

<sup>b</sup> *Caus. Pul. 3. 5.*

<sup>c</sup> *Hildan. c. 5. Obs. 41.*

<sup>d</sup> *Tom. 3.*

<sup>e</sup> *L. 28. Obs. 1.*

## CHAP. IV.

*Of the structure of the Uterus and the Vagina.*

**B**Efore we explain the manner in which the Menfes are occasioned by a *Plethora*, it seems necessary to say something of the fabrick of the *Uterus* and *Vagina*. Which those who have wrote any thing of the Menfes have overlook'd, as a thing foreign to their Purpose, altho' there is hardly any thing which may give a greater Light into this Subject, than the structure of the *Uterus* of a Woman, not only as it is clearly understood, but accomodated to our present Inquiry : I shall therefore speak briefly of this Matter, as far as it relates to my present Purpose.

1. The *Pudendum* in Women, as well as the rest of the Body, is situated *perpendicularly*, with respect to the *Horizon*; in other Animals it is *parallel*.

2. The internal Coat, as well of the *Uterus* as the *Vagina*, into which the Veins and Arteries are variously inserted and disseminated, is altogether free from *Fat* and *Thickness*; so that it can the less sustain or strengthen the Vessels interwoven with its Fibres; which indeed in almost all the other Parts of the Body are very much supported by the Muscles and the Fat.

3. The Blood-Vessels, as well Arteries as Veins, are brought to these Parts in almost an



infinite number; of which, however, the far greater part are spread over the *Uterus*. The Branches of the Arteries, as well as Veins, are united together on both sides by an *Anastomosis*, which are not carried to the *Uterus* in a direct Course, but being variously *entangled* and *writhed* among themselves, creep along in *crooked*, and as it were *serpentine* Traces. The reason and necessity of this Texture is sufficiently clear; for the Woman being great with Child, and the Fœtus every day more and more distending the *Uterus*, the Blood-Vessels would be wholly compressed, or rather break asunder, if they were not restrained by those turnings and windings: Indeed being thus artificially formed, they easily yield to the growing *Uterus*, and in the last Months of Pregnancy are almost brought to a direct Line.

4. The descending Trunk of the *Aorta* is found much larger in Women than in Men; certainly with this design of Nature, that a greater quantity of Blood may be carried, not only to the Muscles serving to exclude the *Fœtus*, but to the *Uterus* also, in which the Fœtus is cherished and maintained. Which great number of Vessels indeed is the cause that the Menfes seek no other Passage, but by the *Uterus*.

5. All the Veins of the *Uterus* are destitute of Valves.

## C H A P. V.

*Of the manner how a Plethora occasions the Menses.*

Since the conformation of the Vessels is such, let us see by what means the Blood is discharged by 'em, upon the coming on of a *Plethora*: Which may be very clearly deduced from these Propositions, which are demonstrated by the *Mathematicians*.

Prop. 1. *The momentum of any Body, or that force by which a Body continually endeavours to depart from its Place, is encreased, either by augmenting the celerity, or the quantity of Matter, or both.*

2. *If the momentum of any Body be greater than the contrary force of the Impediment, that Impediment will be removed.*

3. *In Bodies that strike against one another, the greatness of the Strokes is proportional to the Motion which is lost.*

4. *The Motion is as the Resistance.*

5. *If a Body be carried against any Impediment with a given Force, the greatness of the Strokes will be as the Sine of the angle of Incidence.*

6. *In every Fluid the Pressure is not only downwards, but also sideways and every way.*

7. *A Fluid presses the surrounding Bodies sideways, with all that Force with which its Parts endeavour to recede from Pressure.*

8. *The*

8. *The lateral Pressure is in proportion to the height of the incumbent Fluid.*

9. *The direction of the Pressures on a Superficies, which is pressed, is perpendicular.*

It is shewn by the two former Propositions, why from an encreased *Plethora* the Blood should break out of its Channels ; and, by the rest, why it should be carried forth chiefly by the *uterine Vessels*.

For it is very clear of itself, how the *momentum* of the Blood in a *Plethora* is encreased, the Velocity remaining the same ; because the Quantity is encreased : But if the *Velocity* be also encreased, the *Momentum* will be so much the greater. Nevertheless in a *Plethora* there is always an encrease not only of the *Quantity* of the Blood, but also of the *Velocity*, unless there be too great a lentor or viscosity in the Blood ; for if it be rightly mingled and comminuted, the more it encreases in Bulk, the greater quantity of Spirits is secreted ; but the larger the quantity of Spirits is, so much the oftner and more forcibly the Heart is contracted : so that if a *Plethora* should be occasioned, the Blood must necessarily circulate with the *greater velocity*, and therefore strike against any Impediment with the *greater momentum*.

But the Blood-Vessels are to be regarded as *Impediments*, that the Blood should not be carried out of its Channels ; and this indeed they do, as long as they resist the circulating Blood with an equal or a greater force : But when the *momentum* of the Blood is so far encreased, that

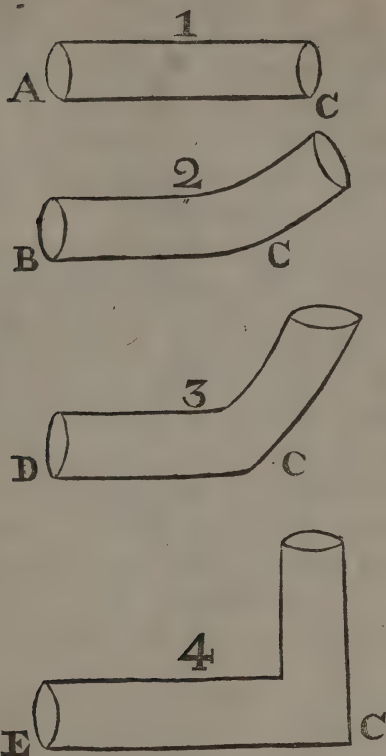
that the Vessels are not capable of making any resistance, they easily give way, that the Blood may break forth thro' their own Coats. But the *uterine* Vessels, because, as we have observed, they are not *supported with any Flesh*, are the most disposed to yield of any other: The very eruption of the Blood proves indeed that they are not capable of resisting; which could by no means break forth, if they on the other hand resisted with an equal *momentum*.

But because by *Prop. 3.* the greatness of the strokes in Bodies striking against one another is proportional to the motion which is lost, we must see whether there be any remarkable diminution of the motion in the *uterine Vessels*: Which indeed will the more clearly appear, if we attend to those things which were a little before mentioned, concerning the structure of the *Vessels*; namely, that they are variously dispersed over the *Uterus*, not in strait but crooked and as it were serpentine Traces: Therefore since the Motion lost is as the resistance by *Prop. 4.* if the resistance in them should be greater, the greater also will be the *magnitude* of the *Stroke*; which we allow to be proportional to the Motion lost. But that there is a greater resistance in these writhed Vessels, is thus demonstrated: If a Fluid run in a *strait* Canal, by *Prop. 7.* there will be only a lateral Pressure, that is, such an one with which the Fluid distends the sides of the Canal; because the sides are not opposed to the Fluid in a direct Line, and therefore are

no



no Impediment to it. Nevertheless, if a Fluid be moved in a *crooked* Canal, it not only presses the sides of that Canal, but *strikes against them* with all the *momentum* it is capable of: But the more it *loses of its Motion*, being thus impeded, so much stronger will the Stroke be against that Impediment. But by how much nearer the Vessels approach towards a *Curve*, *i. e.* by how much the more opposite they are to the direction of the Fluid, so much greater will be the *resistance* of the Vessels; and therefore the magnitude of the Strokes will be greater: From thence also a greater Force will be derived to the Fluid, that it may the more easily break thro' the Vessels. For if the *axis* of a cylindrical Canal *AC* (as in Fig. 1.) be always parallel to the direction of the Fluid, there will be no Impetus on its sides from the Particles of the Fluid; and therefore there will be no *Stroke*, but the Fluid will press *perpendicularly* on the *sides* of the Vessels, with all that Force with which it is itself pressed. But if the quantity of the Fluid be encreased, the Pressure and the Force which is employed against the sides of the Canals, will also be encreased: Whence a distension of the Canals will arise, and therefore a looser texture of the Fibres, and a less cohæsion amongst themselves. But if the Canal be a little *inflected*, so that the Blood be carried obliquely from *B* to *C*, (as in Fig. 2.) the bulk of the Blood being encreased, will not only distend the sides of it, but be carried with an *Impetus* upon the *curved* Parts, and by the *Stroke* break thro' the Fibres at  
this



this Time sufficiently distended: and that so much the easier, since, as *Borelli* has shown, the force of a Stroke is infinitely greater than any Pressure. But the more the Canal is inflected, so much greater will be the magnitude of the Stroke, and that in the Ratio of the sine of the Angle of Incidence. For if the Blood be directed (as in Fig. 3.) from *D* to *C*, the Stroke will be greater at the side *C*, than when the Blood flowed (in Fig. 2.) from *B* to *C*. Therefore

fore the more the Canal is inflected, the greater will be the Stroke; till it comes to the perpendicular Flexure (as in Fig. 4.) where it is the greatest; because there the *Sine of the Angle of Incidence* is greatest. Therefore it is very plain, that the *force* of the *Stroke* is augmented in Canals that are *curved*.

And indeed I was willing to explain this the more largely, that it might clearly be known, that the Structure of the *Uterus* does not a little conduce to the discharging the *Menses* that way.

Among other things this also must be added, that Vessels, the more they are writhed, and twisted with one another, become so much the longer: but upon the account of their length they receive the more Blood between their Sides; the *quantity* therefore of Blood being encreased, the *momentum* also is encreased; whence an Eruption thro' the Coats is rendered the more easy.

But if we more carefully observe the *Fabrick* of the *Uterus*, the more plain will the reason appear, why the menstruous Blood should be discharged chiefly by the *uterine* Vessels. For since the *situation* of the *Pudendum Muliebre*, is *perpendicular*, with respect to the Horizon, the situation of the arterial Canal which carries the Blood from the Heart to the *Uterus*, will also be the same: but because in a Fluid, by *Prop. 7.* the pressure upon any surrounding Body is made not only downwards; but also sideways; and by *Prop. 8.* the lateral Pressure is in a Ratio of the Altitude of the incumbent

cumbent Fluid, the whole Column of Blood extended from the Trunk of the *Aorta Descendens* to the Uterus will compress and distend the uterine Vessels sideways, and that perpendicularly by *Prop. 9.* but if this *Pressure* arising from the *perpendicular Site* of the Arteries, be compared with what has been said about the *windings* of the Canals, the ingenuous Reader will very easily perceive, that the *uterine* Vessels, with respect to all the rest, are by far the most proper for evacuating the Menfes. Inasmuch as, the sides of the Vessels are swelled on account of the *Plethora*, and the *weight* of the *perpendicular* incumbent Fluid both in the Arteries, and in the Veins, so that the Fibres are the more separated from one another: but the finer the Texture of the Fibres is, the easier they yield to any Force impressed upon them. Now in a *Plethora* the *momentum* of the Blood is encreased, because the *quantity* is encreased, and the *velocity* also, unless there be a *Lentor*; the force of the Impediment is diminished, because there is a lesser contact and cohæsion of the Fibres in the Vessels that have been now sometime distended by the *redundancy* of the Blood: therefore the Impediment being surmounted, the Blood at length breaks forth.

Hence also we may draw an Argument of some weight, why in *Brutes*, altho' there is almost the same *conformation* of the *Vessels* in them, (whatever some think to the contrary) there is no *uterine Flux*; because, since in these the *Pudendum* is *parallel* with respect to the Horizon,



rizon, all that *Pressure* against the *sides* of the Vessels, arising from the *perpendicular Site* of the Arteries is taken away: which is indeed not the least Cause, why a *Plethora* in Women should be purged off by the *Uterus*.

The defect also of *Valves* in the *uterine Veins* makes still farther for our Purpose: which however little satisfactory it may appear to the Reader at first sight, will be found of greater weight, if we examine the Office of the *Valves* in the other *Veins*. These indeed, since they are flaccid, would be of no use at all, if the Blood was carried thro' the Veins and Arteries in a *continued* Stream, like a River: in as much as the Blood continually flowing, however *Valves* may be inserted into the Veins, the Fluid altho' carried over a Valve would equally press upon the lower Parts, as if there had been no Valve at all: for if the Canal is *full*, the interposition of a Valve no more takes away the pressure of a Fluid, than if a Bladder filled with Water was laid upon another in like manner full, the interposition of the Membrane does not prevent the Water in the upper Bladder from pressing with its weight upon the inferior. But because the Blood flows from the Arteries into the Veins not in a continued Stream, but by certain intervals, according as the Heart is contracted, the contrivance of the Valves appears to be very useful: for since they allow no return to the Blood, they prevent a greater quantity of Blood pressing against the *capillary Veins*, than what is contained between them and the next Valve: the

The pressure indeed of the Valve is taken away on the lower part, because that space is less distended with Blood, by reason of the Diastole of the Heart, or a delay in the Circulation : but if the Blood in the greater Vessels, during the Diastole of the Heart, was to regurgitate downwards, the small *capillary* Vessels would so labour with the incumbent weight, that they might very easily be broken. But in the *uterine Veins* by reason of the defect of Valves, nothing hinders but that all the Blood which is contained in the larger Branches, should rush back again upon the straighter Passages of the *Capillaries*, and so press their tender Orifices, that they may be very readily separated with any impulse whatever : And by this means the *perpendicular Site* and the *writted Inflexion* in the *Arteries*, and the *defect of Valves in the Veins*, conduce very much to the evacuating the *redundant Blood* by the *uterine* Passages.

But it is much controverted among Authors, from what Canals the menstruous Blood chiefly flows, whether from those which are carried to the *Uterus*, or those which pass to the *Vagina* : which indeed could not, without some Inconvenience be passed by, especially when it may be settled without any disadvantage to either Opinion. For since there is the same texture of Parts, and the same conformation of the Vessels, yet since a far greater number of Vessels run to the *Uterus* than the *Vagina*, what doubt is there but that the *Menstrua* are discharged from both Canals, altho' more plentifully from the *uterine*?

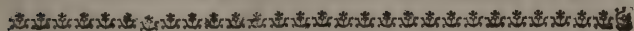
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Which,

Which, however plain it may appear, may yet be briefly illustrated by this Argument; when the *Menses* appear in *pregnant* Women, if there follows an *Abortion*, they are found to flow from the *Uterus*; for what other force can separate the *Fœtus* from the *Placenta*, but the fluctuation of the Blood discharged in the *Uterus*? But if no *Abortion* ensue, we should rather believe 'em to be sent from the *Vagina*; because if there be an eruption of Blood in the *Uterus*, there is great danger of the Woman's *miscarrying*. The *Menses* therefore flow sometimes from the one, and sometimes from the other, yet very often from them both: Nevertheless, in those Women who have had Children, upon the account of a freer Passage, they flow more frequently from the *Uterus* than they do in Virgins.

There is also another Opinion canvass'd among Writers, whether the *Menses* proceed from the Veins or the Arteries, which, for my part, I should rather deduce from the *evanescent Arteries*. For in these Canals there is the greatest straightness, which causes the Blood to strike more vehemently against the Sides, and open the small Orifices: But if it should be thrown upon the Veins, it seems to have got too large a space to be discharged. Therefore if any obstruction should arise in the Canals, as the learned *Pitcarn* justly supposes, it should be placed rather in the *Arteriola* than the Veins. But besides, since the Blood appears very florid and ruddy, it seems to be derived rather from the *Arteries* than the

*Veins.* However, whether it flow from the Veins or the Arteries, it is certainly propell'd from the *Capillary*, and not the *larger* Branches; as may be known from the Flux itself, which is usually *guttatim*.



## CHAP. VI.

*A Refutation of the Arguments against a Plethora.*

WE have hitherto indeed proceeded upon very simple and undoubted Principles; which yet are not more true, than easy to be understood. But altho' a *Theory* built upon this foundation can by no means fall, the Arguments however which are usually brought against a *Plethora*, must not be disregarded; which, if they can be refuted, they will certainly take away all Objections to our Opinion, if they add no strength at all to it. For these Reasons therefore *Charlton* thinks it manifest, *That a mere plenitude is not sufficient to cause an evacuation by the Uterus.*

1. *In tabid and lean Persons the Menses appear according to custom, nay, and sometimes to excess; in whom however the quantity of Blood is below a medium.* We acknowledge indeed the thing itself, namely, that the Menses flow in *lean Persons*; but we deny that there is therefore no *Plethora*, inasmuch as many, ac-



According to *Galen's* Observation, abound with Blood, altho' they are very meagre ; nay, even according to *Charlton* himself, the Blood is so far from being deficient in lean People, that in them it is more especially redundant. Let us then hear himself, *Œcon. Animal. Exerc. 5. S. 3.*

“ Those who are most nourished, as *fat Persons*,  
 “ have but a little Blood ; but *lean* ones have  
 “ great Veins, and a very large quantity of Blood:  
 “ Wherefore these are for the most part lively,  
 “ and perform all the offices of Life with great  
 “ alertness and vivacity, as abounding proporti-  
 “ onably with Spirits : And for this reason *lean*  
 “ Persons bear a more plentiful Bleeding, because  
 “ the fleshy and musculous part in them being  
 “ very lean, it absorbs the greater quantity in its  
 “ Pores : but altho' the Veins should be exhau-  
 “ sted, the loss however will be the less, if so be  
 “ there remains quantity sufficient to support  
 “ Life. But in fleshy and very fat People a co-  
 “ pious evacuation of Blood is injurious ; because  
 “ their habit being deprived of the warmer  
 “ Blood, fill'd with serous Humours, and easily  
 “ degenerates into a *Cachexie*. *Ib. S. 4.* It is  
 “ notorious that in Animals killed by *Hunger*,  
 “ and in Men also who die *tabid*, a very great  
 “ quantity of Blood is found in their Veins,  
 “ even after Death, which would be altogether  
 “ impossible, if the Blood was only designed for  
 “ the nourishment of the Body. For an Ani-  
 “ mal would not perish with Hunger, as long as  
 “ any Blood remained in its Veins ; nor would  
 “ the Bodies of consumptive Persons be so much  
 “ ema-

“ emaciated, while the Veins contained within  
 “ themselves a sufficient quantity of Blood, from  
 “ whence the Parts might be restor’d. To which  
 “ may be added the History in the *Señ. 6.* which  
 “ is taken from *Hippocrates*, of a certain Man,  
 “ who when he was reduc’d to extream Leanness  
 “ by his Distemper, and grew daily more and  
 “ more *tabid*, at length upon opening a Vein in  
 “ either Hand, alternately, till all the Blood was  
 “ discharg’d, he in a short time became *very fleshy*.  
 But how comes it that this Gentleman, who in  
 arguing against the nourishment of the Blood, so  
 strenuously defends a *Plethora* in *tabid and lean*  
 Persons, should in his Reasonings about the *Men-*  
*ses*, endeavour to overturn it? But these Argu-  
 ments of *Charlton*, which we have just now ta-  
 ken from his *Animal Œconomy*, are so solid and  
 agreeable to truth, that they cannot be overturn’d  
 even by *Charlton* himself. Hence is it, according  
 to *Galen*, that *lean Persons* bear a very copious  
 Bloodletting; by which means the *Menses* are  
 very often restor’d even in those Persons, after  
 they have been long wanting. There are many  
 Examples of this sort, and it is observ’d almost  
 every day, that in *lean Women who give suck*,  
 the *Menses* return for the most part according to  
 custom: so far are *lean Persons* from having a  
 quantity of Blood *below a medium*.

2. That very plenitude is sometimes an hin-  
 drance, that the *Menses* flow not at all. Thus  
 indeed the greatest part of Writers assign one  
 Cause of the suppression of this *Flux* to be a *Ple-*  
*thora*; by which they suppose a suppression of

the *Menses* to be occasioned after the same manner, as an *Ischurie* sometimes arises from too great a quantity of *Urine* with which the *Bladder* is extended<sup>a</sup>.

But if any one weighs these things accurately, he will find the reason of these *Suppressions* to be vastly different from one another: For the *Bladder* is defended by a very firm and musculous Coat, so that if the *Urine* should be accumulated above measure, it cannot break thro' the sides of the *Bladder*; because it slides into it without any *Impetus*, and therefore does not strike against it with any *momentum*. But by the *lateral Pressure* only, with which force all *Fluids* are endow'd, it is so far able to *distend* the *Sides*, that they can by no means *contract* themselves, and so throw forth the *Urine*, *b. e.* the quantity of *Urine* is so great that it is more than can be moved by the strength of the *musculous Coat*, and therefore the action of the *Muscle* is suspended. Nor can the *Muscle* contract itself, before that either its *momentum* is encreased, so that it may over-balance the weight of the *Urine*, or that very *Urine*, which resists the force of the *Muscles*, be drawn off by a *Catheter*. But in this case the *Ischury* is much assisted by the *Sphincter* of the *Bladder*; which, since it is a *Muscle* perpetually contracted, unless when it is overcome by its *Antagonist* and the weight of the *Urine*, it will certainly be very strongly contracted, if no *contranitency* arise from its *Antagonist*: But its *Antagonist* is the *Detrusor Urinae*,

<sup>a</sup> River. Etmüller.

or the *muscular Coat* of the Bladder itself; the action whereof we have already shown to be suspended by the *quantity of Urine*. After a very different manner it is with a *Plethora* in the *uterine Vessels*; for there is brought upon these by the Blood, not only a *pressure*, and that *perpendicular*, but also a very forcible Stroke; and so far are the sides of these Canals from being muscular, that they are supported by no Muscles at all; so that if a *Plethora* remain, there cannot possibly avoid a Rupture; as has already been demonstrated. This *Plethora*, therefore, if it be regarded by itself, will by no means occasion a suppression of the Menstrues: but the Blood may be redundant altho' the Menstrues do not flow. But we suppose that in this case there is no disorder in the Canals, (for if there was, the suppression should be attributed to *that*, and not to a *Plethora*) so that the cause of the suppression must be sought for in the Blood. But since the quantity of Blood cannot be in fault, (for that, as we have seen, would rather promote than suppress the Flux) it remains, that this Suppression must be brought on by one or other of the *Qualities*: among which no one seems so much adapted for this purpose as the *Viscosity*; for when the Blood becomes *sluggish*, and its Particles cohere tenaciously, and so encrease in their magnitude, it cannot possibly be discharg'd by the Orifices of the *capillary Vessels*; in which therefore an obstruction will arise. Moreover, these Passages being obstructed, by which the Blood us'd to pass forth easily, it is contain'd between the sides of the



larger Canals, which are too strong for it to break thro'. By these means, therefore, and no other that I know of, will the suppression of the menstruous Flux be occasion'd, altho' there should be a *Plethora*; however, this suppression is not properly to be attributed to the *Plethora*, but a *Lentor* in the Blood.

3. *If therefore the Menses flowed because the Blood was redundant, they would break forth thro' the other Vessels, as the Lungs, &c. rather than the uterine.* But I think this Argument has been fully answer'd, by what we have said of the site and structure of the *Uterus*; where we have demonstrated, that the *Uterus*, with respect to all the other Vessels in a Woman's Body, is the best fitted, and as it were contrived, for the discharging of the Menses. But if the uterine Vessels should be something indurated, and be rendred more tenacious, or the *Plethora* be abundantly increased, the Blood will force itself a Passage thro' the other Canals; so that in those Women in whom the Passage by the *Uterus* is blocked up, the plethorick Blood is very often discharged by the Nostrils or the Lungs; after the same manner as in those Persons who drink plentifully of *Wine*, the Blood is frequently observ'd to break forth, as it were critically, by the Nose.

Another Argument also may be brought against a *Plethora*; namely if a *Plethora* is accumulated in Women, that they may the better furnish the Foetus with Nourishment; why should it be wanting in *Brutes*, which nourish their Offspring no less than Women? However this  
Matter

Matter may be sufficiently obscure, without doubt we may certainly conclude from what has been said in the 3d and 5th Chapters, that since *Brutes* are altogether free from the *Menses*, and preserve always the same State of Body, after they have arrived to their full growth, all the daily Evacuations in them are answerable to the Aliment taken in: unless there be in them some other menstruous Evacuation as *Sanctorius* has observed in the Men <sup>a</sup>. The same must be said of Women in whom the *Menses* flow not before *Pregnancy*. But when *Brutes* are with young, because they contribute something for the use of the *Fœtus*, they must in the time of Gestation, either take in more Nourishment than usual, or discharge less. Therefore it is observ'd that *Brutes*, especially *Bitches*, which are pregnant, are much more ravenous than at other times: For it is this chiefly which we are contending for, that the *Menses* in healthy Women are occasion'd only by a *Pletthora*: But if in some the *Menses* are deficient, yet there is not therefore wanting a supply, whence the *Fœtus* may be sufficiently nourish'd. Therefore *Aristotle* <sup>b</sup> supposes, that some Women may *conceive* without any Flux of the *Menses*, *viz.* those in whom so much Humour is collected, as usually remains in others after a menstruous Evacuation, altho' there is not a quantity sufficient to be discharg'd. Inasmuch as it is necessary in this very singular Case, that the proportion of the Evacuation and Addition in the Woman both *before pregnancy*

<sup>a</sup> *Med. Stat.* 1. 63.

<sup>b</sup> *Hist. Animal.* 7. 2.

should

should have been the same, and that now she is pregnant, there should be a diminution of the customary Evacuation.

And thus much have we said concerning the nature of a *Plethora*; which being well weigh'd and understood, the cause of the uterine Flux, which has long puzzl'd so many, is very easily deduced. So clearly may this whole Affair be conceiv'd, even by *Tyro's*, in so very simple and natural a manner do all the effects of the *menstrua* flow from a *Plethora*, that I am surpris'd Authors could possibly seek for any other Cause. But if I can show in what follows, that all the *symptoms* which arise from any disorder of the *Menses*, agree very well with this Doctrine of a *Plethora*, and that they can be easily derived from it; and that, *lastly*, the very *method of Cure* favours our Opinion, nothing farther can be requir'd of us, even by a *Sceptick*.

But since a *Plethora* is agreed to be the efficient Cause of the *Menses*, the Reader will remember that I always speak of Women in Health. For the *Menses* flow oftentimes from a too great weakness of the *Vessels*, from the acrimony of the *Humours*, &c. But these, and the like, are *Disorders* which we suppose absent in a sound Body.

## CHAP. VII.

*Of the Periods.*

**A**Mong those who have flatter'd themselves with having investigated the Causes of the *menstruous Flux*, there is hardly any one who has endeavoured to explain the reason of the *Periods*; but every one has contented himself with ascribing them either to the Motion of the Moon, or to some unknown Law of Nature: Even they who are altogether for a Ferment, do not apply even that to the explaining the *Periods*, altho' they have got a *Delphick* Sword, which may be wrested on every side, and equally accommodated to all the mysteries of this *Flux*. But have all thought this affair of the *Periods* to be something very abstruse, which they have certainly rendred very obscure by their Fictions: altho' if we follow *Nature* as our *Guide*, and not any *Hypothesis*, in investigating the truth, nothing easier, or more simple, can be thought of, than this whole doctrine of the *Periods*.

We believe what has been said in the 3<sup>d</sup> Chap. concerning a *Pletthora*, to be so certain and perspicuous, that no one any longer doubts *the perspiration in Women being less than it ought to be*. The diminution therefore of the Perspiration being not only supposed, but also demonstrated, let us see what may be thence drawn, towards the more clearly explaining this interval of the *Periods*. Since the Perspiration in Women i  
de



fective, it is necessary that something be daily heaped up within the Vessels, from whence the *Plethora* does gradually encrease. Let the measure then of the daily Nourishment be what it will, if the *thirtieth part* of it be every Day inwardly accumulated (which will seem to be a very small quantity, if compar'd to that which *Sanctorius* tells us may be impeded, by a slight Cause, in the space of one Night) a quantity will be accumulated within 30 Days, equal to the Victuals every Day taken in: and therefore if the Measure of the Aliment be 2. *lib.* (which yet is almost always less than what is usual) the 30th part of it which is redundant every Day in the Blood will be  $3\frac{2}{3}$ ; and within a *Month* or thirty Days the quantity of the encreased Blood will be 3 192. or *lib.* 2. which exceeds the quantity of Blood discharged in the menstruous Flux by 4 Ounces. There would therefore be a sufficient quantity of *pletborick* Blood for the discharging monthly *lib.*  $1\frac{2}{3}$ . which is the common Measure of the *Catamenia*, if the *Perspiration* was diminished in the space of a Day not above  $3\frac{1}{3}$ , which is very little. And by this means it may very easily be conceived, that a *Plethora* may encrease in the space of 30 Days; but by what force this *Plethora* is enabled to break thro' the *uterine Vessels*, is sufficiently explained in the foregoing Pages. However this one thing may be added, from whence the Ratio of the *momentum* encreasing in the *pletborick* Blood may perhaps still more clearly appear. Since the quantity of Blood discharged every

Month

Month is 3 20. this is about the *tenth part* of the whole Mass of Blood (which is commonly reckoned 19 or 20 *lib.*) this addition therefore being made to the Blood, the *momentum* of the Blood, will be greater by a *tenth part* at the end of each revolving *Period*, (and this indeed from an encreased *quāntity* alone, not to say any thing of the *Velocity*, which, if the Blood be in a sound State, is also encreased in a *Plethora*) besides every Canal in the Body will be more pressed and distended by a *tenth part*: Thus the Canals are able to sustain the pressure encreated by an *eleventh part*, a Day or two before the Flux, (for they hold in the Blood within their Sides) but upon the addition of the *tenth* they give way, as in Scales brought to an *Æquilibrium*, if any thing more be added, it *præponderates*. Which may very easily and clearly be known, both from what has been said concerning the Causes of the *Plethora*, and also from matter of Fact. Upon the *flowing* therefore of the *Menses*, the Vessels are emptied of all that Blood, which constitutes the *Plethora*; but upon their *ceasing*, the Womens Bodies are reduced to their usual weight: from whence by the Perspiration being again deficient, it is necessary that the *same Redundance* be accumulated within the same space of Time. But if it be granted that the Blood Vessels be *once* broke thro' by such a *Plethora*, it follows, if a like *Plethora* return *every Month*, that the same Flux must in like manner be brought on again; but the perspiration in Women being defective,

festive, the *interval of a Month* is abundantly sufficient for the renewing and accumulating such a *Plethora*. It is therefore equally necessary that the Flux in Women should return at stated and determined Times, as that the *Seasons* of the *Year* should be renewed in the same turns *yearly*, and every one in its proper order: nor is it more surprising, that this Flux should revolve in the *period of a Month*, than the *Summer* in that of a *Year*. For the effect will always be the same and constant to itself, unless there should happen any change in the Cause; but that this may happen in the returns both of the *Menses* and of the *Years*, is sufficiently proved by the uncertain intervals of the *Periods* in this Flux, and the various changes of the *Seasons*: but this must be attributed to causes, which are common to both sides, and therefore does no ways detract from the necessary and constant effect of the *primary Cause*. For however each Season may have its stated time for returning, yet many things may intervene and frequently do, either thro' some fault in the *Earth* or in the *Air*, that they do not return at due intervals, or finish their usual Course: the same holds also in the Periods of the *uterine Flux*; for altho' Nature has allotted them the space of a Month, yet being often disturbed by some extraneous Causes, they either pass, or stop short of their Limits.

But lest any thing should be wanting, towards the better understanding the Reason of the menstruous Return, let us consider the *Phæ-*

*nomena*

*nomena* of some other things which repeat their Periods at stated times; of this Class is the well known *intermittent Fever*, altho' it has either been little explained or understood. The origine of this, *Bellini* the first Inventor of a medical Theory, rightly deduces from a *Lentor* in the Blood: if any one doubts of this, let him consult his excellent Treatise upon Fevers. A *Lentor* therefore being granted in the Blood, some particles of the circulating Fluids will be too large to pass the slender Orifices of the *capillary Vessels*; therefore these particles will adhere to them, which being daily encreased with fresh supplies, will gradually so obstruct the Orifices of the Canals, that at length the passage thro' them for the Blood will certainly be difficult, if any at all. Thence also is the *coldness* in the *extreme Parts*, because the Blood does not pass on to them. There being therefore a redundancy of Fluids in the larger Branches, the Heart is the oftner and more forcibly contracted, and consequently the *momentum* of the Blood is so much encreased, that the Vessels could not avoid being burst, if a part of the Fluid was not thrown forth by some passage or other. Thus after the *coldness* in an *intermittent Fever*, the Patient is at length seiz'd with Heat, till the *Paroxysm* is carried off by the coming on of a critical Sweat: because the Matter having been plentifully evacuated by the Pores, the Canals are emptied, so that the Blood may circulate thro' the more slender Vessels, after its usual manner. But the same *Lentor* remaining



in the Blood, the same *adhesion* of the *viscid* Humour will be again made at the orifices of the Vessels, and the same obstruction will gradually increase; so that a *Paroxysm* will return altogether like the former. But if the same *Lentor* remain in the Blood, what wonder is it that the Distemper should so order its Periods, that the *Paroxysm* should invade the Patient again on the same Day, nay, at the same Hour? Why should not the Type return the same at the *second* time, as it was at the *first*, since the cause of the *Paroxysm* is the same? It would be absurd, if the Disease is deriv'd from a *Lentor*, as has been explain'd, that the *Fever* should rage now at this interval, and then at another, when there is no change at all made in the *Lentor* which brings on that *Fever*. But if there should, the *period* and the *type* will also be chang'd.

The reason of the *Periods* in the *menstruous Flux* is wholly the same; for if the quantity of the perspirable Matter retain'd every Day be the same, a *Plethora* altogether the same will arise, by which the *uterine Flux* will always be promoted at a determin'd time. But if any thing should intervene, that the *Plethora* should not attain its usual measure, then the manner of the *Period* will also vary; as shall be explain'd hereafter.

*Sanctorius* also observes a *periodical* Evacuation in Men, namely, <sup>a</sup>“ That the Bodies of Men, “ in Health, and who use a very moderate Diet, “ become every Month heavier than usual, by

“the weight of one or two Pounds; and about  
 “the end of the Month return to their usual  
 “weight, after a Crisis has been made by Urine,  
 “more than ordinary copious or turbid.”

From hence it is very plain, that this *critical* Evacuation by Urine, which *Sanctorius* speaks of, is made every Month in them, because the weight is every Month encreased, or what is the same thing, there is a plenitude of Humours in the Body; which, if there was not, no evacuation at all would follow : but as long as a given Quantity is accumulated every Month, so long, at the end of that Month, will the *periodick Crisis* return.

In like manner, if Women used the same way of living, and acquired the same *fulness*, would the *Periods* of the *menstrua* always return. But because every Woman differs from the others in Constitution, Age, manner of Living, and in being born in different Climates, the intervals of the *Periods* must vary in different Women. But if any one inquire into the Causes of this variety, he will find the disagreement of all the Seasons of the reciprocating Flux to depend wholly upon the various state of the *Plethora*. This not having been remark'd by Authors, seems to be the cause that they have made no inquiry at all into the reason of the *Periods* : it was, no doubt, wisely enough done of them, inasmuch as that various Type, which happens in the returns of the *Periods*, could not conveniently be deduced either from the *Moon*, nor from a *Ferment*, nor from that very *Archæus* whom *Van*  
 E Helmont

*Helmont* governs at pleasure. But, because there can be no difference or inconstancy in those Causes, the manner of their acting will also be determined and uniform; so that if the *Menses* were wholly excited by these, they would flow in all alike, and at the very same Intervals. But that almost infinite *variety* of the *Periods* cannot be derived from any Cause, but what is very changeable, such a one indeed as is the *Pletthora*, which may very easily be changed by a thousand ways; as shall be shown by what follows.

For in *bilious Temperaments* the *Menses*, as has been shewn, flow somewhat earlier, and finish their *Periods* sooner: The Blood being not only more copious in this Temperament, but also thinner and more fluid; therefore the less cohesion there is among the particles of the Blood, then they will sooner grow hot, and the more easily rarify, they will possess a larger space, and so distend the Arteries more widely. Wherefore there is observ'd in a *bilious Constitution* a great Pulse, a meagre Body, and a proneness also to Anger and Lasciviousness, which are all signs of an abounding Blood; so that this might more properly be called by the common name of a *Sanguine* (for thus is the *cause* of that Temperament explained) than a *Bilious Constitution*, since a greater secretion of the *Bile* necessarily flows from an *abundance* of Blood, as the *effect*. Therefore since a Woman of this Temperament sooner acquires a *fulness*, it is plain, why the *Menses* flow in her before the usual time, and return at shorter *Periods*. In these also the

Flux

Flux is terminated sooner, inasmuch as the Blood being thin and very finely comminuted, is the more freely thrown out by the Vessels.

In like manner, in a hotter Climate the *Menses* arrive a Year or two before the second *Septenary*; the reason is the same as in the former Case, for by the Heat the Blood is very much rarified. Upon that account also is it that the *Menses* flow more copiously in those who live near the Equator. On the other hand, the *Plethora* in Women is retarded in its encrease by the Cold; therefore in the *Northern Countries* the *Menses* very often do not appear till after the second *Septenary*: Hence *Hippocrates* tells us, that in Cities exposed to the *cold Winds* the Virgins ripen *more slowly*<sup>a</sup>. He likewise remarks, that in the *Scythian Women* the *uterine Flux* is found to be not only later, but also in a smaller quantity<sup>b</sup>. In Women who fare daintily, and indulge themselves much, the Flux is often continued till the *sixth Day*; for the greater the quantity of Nourishment is, which is taken in, so much greater will be the redundancy of Blood: and since this is the cause of the *menstruous Evacuation*, the Flux must necessarily answer the greatness of the *Plethora*. For, according to *Hippocrates*<sup>c</sup>, the *Menses* flow more plentifully in Persons who have been corpulent. The same likewise happens in those whose Vessels are very large, as in *lean Persons*, or whose Bodies are less perspirable, as in the *Indolent*<sup>d</sup>. *Galen*<sup>e</sup> has observed the same in

<sup>a</sup> *De Aer.* 7.<sup>b</sup> *De Aer* 48.<sup>c</sup> *Morb. Mul.* 1. 19.<sup>d</sup> *Duret, in Holler.* 253.<sup>e</sup> *Morb. vulg.*



delicate Women who abound in Humors. With whom also agrees that Sentiment of *Hippocrates*, that the *Menses* continue long upon Women of a *watry*, i. e. a very moist Constitution<sup>a</sup>. On the other hand, in fat Persons, as *Hippocrates* remarks<sup>b</sup>, and in those who either use a slender Diet, or much Exercise, the Flux is terminated sooner; the *Plethora* being less in each of these, for the Blood is not accumulated in Persons who use a spare Diet; and in those who use much Exercise it is wasted and dissipated thro' the Pores. Hence *Country* Women, who labour hard, have the *Menses* more sparingly. But in fat Persons the Blood is not amassed within the Vessels, but diffused into the habit of the Body; as is proved in the *sixth Chapter*; therefore these Persons are endowed with slenderer Veins, and are less disposed to conceive. For the *menstruous Flux*, altho' it is not altogether *necessary* to Conception, it causes however that the Women *conceive the more easily*; inasmuch as it so opens the uterine Passages, that the *Semen* has a freer entrance into the Blood. Hence *Hippocrates*<sup>c</sup> tells us, the *Scythian* Women are *unfruitful*, because they have the *Menses* but in a small quantity: There being therefore a defect in the quantity of Blood, the Flux will be sooner over; so that it is reckoned by *Hippocrates* as a sign of *fatness*, if the Flux stops within three Days<sup>d</sup>. Upon the same account is it that the *Menses* cease much sooner in *fat* Women, namely, at the thirtieth or five

<sup>a</sup> *Epid.* 6. 1.*Morb. Mul.* 1. 15.<sup>b</sup> *Morb. Mul.* 1. 15.<sup>c</sup> *De Aer.* 48.

and thirtieth Year, as *Foreſtus* witneſſes <sup>a</sup>. It may alſo be remarked that in theſe Perſons the Menſes may be wholly *ſuppreſſed* without any injury, as alſo in thoſe, who frequently let Blood, which is both noted by Authors, and confirmed by Experience.

In like manner in Girls that are *leſs ſanguine*, the Menſes break forth later, and flow more ſparingly, becauſe the *Plethora* encreaſes but ſlowly: this being likewiſe defective it comes to paſs that the Menſtrua return very ſlowly in Women *recovering from a very long Illneſs*; for the Blood being exhausted by a *chronical Diſtemper*, very difficultly recovers its antient ſtate.

In like manner do the *Periods* diſagree in different Women; which however are not leſs various in the ſame Perſon, according to the difference of Age and the manner of Living. But ſuch is the nature of theſe Periods, that the leſs ſtated and certain they are, ſo much the more conſonant are they to Reaſon, and the more answerable to the various *genius* of the *Plethora* whence they are derived. For what is more natural, than that the Period ſhould vary according to the variety of Age, ſince the *Plethora* is different in *pubeſcent* Perſons, in *adult*, and in thoſe who are more *advanced in Years*? Forasmuch as in *Girls* the interval of the Period is oftentimes found to exceed a Month, becauſe a great quantity of the Blood being employ'd towards nourishing the Body, the *Plethora* encreaſes more ſlowly in the Veſſels. But when the Woman has arrived to

<sup>a</sup> *Lib. 28. Obſ. 3.*

her full growth, the Blood being discharg'd from its office of nourishing, may every Month accumulate such a *Plethora* as may easily break thro' the uterine Vessels. Moreover, in a declining Age the Strength is diminished, and the Blood becomes defective by degrees, so that there is a slower encrease of the Plenitude, and a longer delay of the Period: Upon this account, about a Year or two before the seventh *Septenary*, the Period is often observed to last two or three *Months*, till the *Menses* being gradually diminished, at length wholly cease. From *the manner of living* arises the like disagreement of the Periods: if the Woman be accustomed to much Labour and a thin Diet, or upon any other account accumulates a less quantity of Humours, the Flux returns at the longer Intervals; but if she fare *sumptuously*, or by any means amasses a *Plethora* within the Vessels, she is the oftner purified; as will appear more clearly from what follows.

We have seen the great diversity in the *Periods*, by which however our Opinion of a *Plethora* is so far from being overturned, that it can hardly be established upon a more solid Proof. Every one allows the discharge of the *Urine* to be made quicker or slower, according to the different quantity of *Liquors that are drank*: And in the *Meadows* no one will expect an Inundation every Year equally great, but such an one as may well answer to the *swelling of the River*; why should we not then, in like manner, expect the *Periods* of the *menstruous Flux* to be consonant to the various degrees of the *Plethora*?

## C H A P. VIII.

*An explanation of the Phenomena of the  
Menses.*

**W**E have sufficiently proved, that the *uterine Vessels* at the *approach of the Menses*, are much distended by a fulness of Blood; and the same is also testified by *Anatomists*<sup>a</sup> who have dissected *menstruous Women*: but if the other *Phænomena* of the Flux can be well deduced from this *plenitude*, there is nothing can be added for the illustrating of this Theory.

Those Symptoms then which we have said to appear at the approach of the Flux, make for us, namely, *an Heat and Pain of the neighbouring Parts, especially about the Loins and Hips, and sometimes also an Inflammation; an Head-Ach, weariness of the Legs, a loss of Appetite, and a Faintness*: all which may easily be deduced from a *fulness of Blood*. For in this we have often shewn that the *momentum* of the Blood is encreased, from whence also its *heat* will be more intense: which so depends on the circulating Blood, that it is nothing else, than a mutual Impetus and attrition of its Parts. But the Motion being encreased, as it happens in a *Plethora*, there will be a greater attrition of the Blood; because both the *quantity* and *velocity* of the Humours is encreased, therefore upon both these accounts will the *heat* encrease,

<sup>a</sup> Graaf. Highmor. &c.



which if it be too much, it will bring on a *slight Fever*, as is frequently observed by *Practitioners*, and an Inflammation.

Moreover, since the sides of the Canals in a *Plethora* are so distended, that there is a lesser cohæsion of the Fibres with one another, a solution of the *Continuum* will arise, and consequently a *Pain*. Wherefore *Hippocrates* teaches us, that there is *no pain* in a suppression of the Menstrua from *Pregnancy*<sup>a</sup>; because the plethorick Blood is not redundant in the Mother's Vessels, but is carried to the Fœtus. But a *Pain* easily seizes the *Head*, because the Fibres of the *Brain*, make but little resistance to the impulse of the Humours, and are very readily separated, that being the softest Part of all, and the best furnished with Blood Vessels. Therefore *Hippocrates* remarks<sup>b</sup> that *these Pains in the Head*, chiefly attend *Virgins* at the approach of the Menfes. *Paulinus*<sup>c</sup> tells us that at this time, together with the Pain of the Head, *Vesiculæ* have also arose behind the Ears. In like manner *Baglivi*<sup>d</sup> makes mention of a periodick Swelling in the *Clavicles*. Lastly, The Parts adjacent to the *Uterus* suffer more Pain than any other, because the *Plethora* is chiefly accumulated in that Region upon the account of the great number of Vessels: and because the *Loins* and the *Hips* have Nerves in common with them which run to the *Uterus*, if any one denies there being any Consent, or as it were

<sup>a</sup> *Nat. Puer.* 1. 6.  
*Septentr.* p. 34,

<sup>b</sup> *Prædict.* 2. 39.  
<sup>d</sup> *Fibr. motr.* p. 5.

<sup>c</sup> *Med.*

Sympathy between them, he may as well affirm also that they have no sensation at all. Some addition also may be made to this mutual Consent, by the intervention of the Ligaments.

From thence comes a *weariness in the Legs*, because the uterine Vessels are so swelled with Blood, that they compress the Origins of the Nerves, which are carried from the *os sacrum* to the *Legs*; and such a compression as this intercepts the Spirits, and brings a certain *Stupor* on the *Legs*: which almost always happens in Women big with Child, for the same reason; as it also often does in those Persons, whose Urine has been long *suppressed*. Therefore *Hippocrates* <sup>a</sup> tells us, that there is some danger of a *lameness* from an obstruction of the *Menfes*.

The *Appetite* also is *abated*: because the Blood is so rarified beyond measure, and so dilates the Arteries of the *Ventricle*, that the Nerves are very much compressed: by which it comes to pass, that the Spirits cannot flow plentifully enough into the muscose Coat of the Ventricle, and therefore a due Contraction is prevented. But the Contraction being hindered, the *Appetite*, whether it arise from the *attrition of the Sides*, or from a *humour in the Ventricle*, necessarily decays: for unless the *Ventricle* be forcibly enough contracted, there can neither be any attrition of its Sides by contact, or any discharge of Humour from its Coats. In like manner do *Cardiacs* and *Opiates* often blunt the Edge of the Stomach.

<sup>a</sup> *Nat. Puer.* 1. 7.

But a *faintness* invades; because in a *Plethora*, both the Body labours under too great a weight, and the tender Vessels of the Brain are so swelled, that they shut up almost all the Passages into the *Nerves* by their compression; wherefore a less copia of Spirits is derived to the Members.

In this Condition are the Women usually, at the *approach of the Flux*: the same also is observed by *Sanctorius*<sup>a</sup> in those *Men* in whom that monthly Evacuation happens, which we have before mentioned; namely, “ That before this  
“ monthly Crisis, there is either felt a heaviness  
“ in the Head, or a weariness of the Body, and  
“ that afterwards by a very plentiful Evacuation  
“ of Urine, every thing is at ease. In like manner in Women, as soon as the Catamenia have  
“ done flowing, the former vigour again returns.

That all these Symptoms may be derived from a *Plethora*, may be proved by very proper Witnesses, namely, *Drunkards*.

Here also may be added, that the *Breasts* in those *Girls*, who have not yet had the Menstrues, oftentimes before the Flux become *swelled* and plump: besides I have known in some Women the *Belly* to be so much inflated at the approach of the Flux, that they seemed to be troubled with a *Tympany*; which whence it can be deduced, I do not see, unless from a *Plethora*. Nor must it be omitted, that those Women who lead an *idle* Life, or have *never had Children*, are most liable to these Symptoms which happen at the ap-

<sup>a</sup> Med. Stat. 1. 66.

proach of the Menfes, because in them a *Plethora* is the more easily encreased.

In like manner is a *Plethora* proved from the difference of the quantity discharged, *inasmuch as that encreases to the very flower of Life*; for the nearer a Girl approaches to her full growth, so much less Blood is there thrown into the habit of the Body, for the nourishment of the Parts, and therefore the Blood is more plentifully amassed in the Vessels. *In the flower of Life it remains the same*, because when the Body has once done growing, it flourishes a long time altogether in the same state. *Age again declining, it is gradually diminished*; for as *old Age* creeps on, the Humours every Day become both less redundant, and the Fibres of the Vessels grow more rigid and hard; so that a *Plethora* can neither be accumulated at that Age, nor if it be, can it be discharged, because of the *tenacity* of the Vessels. Therefore *Hippocrates*<sup>a</sup> with good reason affirms, that *elderly Women* are more dry and abound less with Blood. It will not be amiss in this place to go somewhat backward in our Inquiries into the origin of the *Plethora*, and to explain the Reasons why the *menstruous Flux* does not begin before the *second Septenary*, and ends at the *seventh*: The reason of which the learned *Cockburn*<sup>b</sup> first taught us in his *Animal OEconomy*; The Body being hitherto tender and growing, the *Fibres* are so *flexile* that all the Pores, as *Hippocrates* remarks, are easily pervious and perspirable; which is sufficiently proved

<sup>a</sup> *Mor. Mul. Mul.* 2. 3.

<sup>b</sup> *Oecon. Animal.* p. 130.



by that disposition to *Sweat* which is found in Persons *very young* : Therefore whatever Aliment is taken in, it either goes to the nourishing the Parts, or if there be any superfluity it is readily thrown forth by the *Pores*, whence there is no *Plethora* accumulated at that Age, to promote the *Menses*. But since the *Fibres* by the encreasing of the Body become more *solid* and *hard*, which always happens about the Age of *Puberty*, it is necessary that the Pores or Orifices of the capillary Vessels become streighter than before ; so that, the Orifices being contracted, there is a less secretion made by the smallest Vessels. The secretion therefore becoming by this means defective, there is a redundancy of those humours in the Blood, which are left remaining after the Parts are nourished ; by which *redundancy* of Humours the *Menses* are excited. In like manner, from the same Cause, there also frequently happens to *Boys about the Age of Puberty* an *Hæmorrhage* at the *Nose*. But because this *hardness of the Fibres* is brought on gradually and slowly, the *Plethora* therefore is in like manner encreased by degrees ; so that at its first beginning it is very moderate, afterwards encreasing with Age, it gains the summit of its growth by little and little. The truth whereof is abundantly confirmed by experience, for in *Girls* already Pubescent, the *Menses* break forth in a very *small* quantity, which since they ought to answer to the *Plethora*, encrease also after the same manner even to the very *Flower of Life*.

But

But the Menfes do not continue beyond the *seventh Septenary*, because the Vessels of the Uterus are become too *strong* for the momentum of the Blood to break thro' them; but this *strength* of the *Vessels* arises from thence, that the Fibres in *old Age* become not only more rigid and make a greater resistance, but the *mouh*s of the *Capillaries*, from which the Menfes were wont to flow, are at length become so far *cicatrized* and callous, (as it happens in the Hæmorrhoids which have often been cut) that the Blood can no longer find a Passage that way. But the *Capillaries* being blocked up, however the *Plethora* may be encreased, it will strike against the *larger* Vessels to no purpose. But if the Menfes should after this manner be suddenly restrained in those who are more *advanced in Years*, all those Symptoms would certainly ensue, which usually happen in a *suppression* of the Menfes. That therefore this inconvenience may be avoided, Nature has wisely ordered, that as the Menfes gradually encrease with the growing Age, they should also become by slow degrees deficient, as the same again declines. So that almost always before the forty ninth Year not only the Quantity is gradually diminished, but the *Periods* more *seldom* return. The uterine Vessels therefore resisting after this manner, let us suppose then that a twentieth part of the Menstrua or  $\frac{1}{20}$  be retained within the Canals the first time, which since it is but a very small quantity, may easily enough be discharged some other way, *b. e.* another Evacuation

ation may be so encreased, as to supply the defect of the *Menses*; especially since nothing more frequently happens, than that one Evacuation being diminished, another should be encreased to supply its place; as for example, a *looseness* very frequently succeeds upon the *Pores* being obstructed by the cold. At the second Period therefore let us suppose that the quantity of the Blood thrown forth does not amount to above 3 18; without doubt it may easily be granted, that that other Evacuation may also encrease in the same proportion. Therefore the *Menses* becoming gradually defective, the other *secretory* Vessels will by custom be brought to that pass, as to be able to receive and discharge that *Plethora* which is heaped up every Month. Therefore no very bad Symptoms happen in *elderly* Women, although the *Menses* should be wanting. *Santorius* much favours this Opinion, who affirms that the *sensible* Evacuations are encreased in *old Age*. That also makes much for our Purpose which is proved by common observation, that many Women, as soon as they are destitute of their *Menses*, contract a *fuller* habit, and *grow fat*. So that the *Menses* may be deficient, when in the mean time there is but little defect in the *quantity of Humours*; but if that likewise should prove deficient, as it usually does in *old Age*, there will be another reason why the *Menstrua* should cease at the *seventh Septenary* without any injury to the Health. By the way we may observe, that the different; season both of the  
break-

*breaking forth* and of the *ceasing* of the Menfes, depends very much upon this variety in the hardness of the Fibres.

In *pregnant* Women the Menfes are wholly wanting; but whence is it, but that the plethoric Blood is remitted to another Part, *viz.* to the Fœtus? sometimes indeed a greater quantity of Blood <sup>a</sup> is found in the Mother, than can be spent upon the *nourishing the Fœtus*, so that the Menfes are not deficient, altho' the Women be *great with Child*: therefore these Women who have their Menfes, although pregnant, are observed to be for the most part *very gross* and turgid with Humours. But the Menfes are wholly suppressed after the third Period is elapsed; because the Fœtus encreasing so as to require more plentiful nourishment, the *Plethora* is diminished. But if they should continue to the last Months, the Fœtus is wont to be very *sickly* and *weak*: so true is that observation of Hippocrates <sup>b</sup>, *if a Woman with Child have her Menfes*, i. e. either customarily or immoderately, *it is impossible, that the Fœtus should be well*: the reason of which he delivers in another Place, namely, *that the growth of the Fœtus is abated by the Menfes* <sup>c</sup>. In like manner Celsus <sup>d</sup> remarks, that, if Milk flow from the Breasts of a *Woman with Child*, whatever she bears must be weakly, inasmuch as the *Breasts* draw off that supply of Blood, with which the Fœtus ought to be nourished.

<sup>a</sup> Hild. c. 5. obs. 41. Cummius Med. Sept. 37. <sup>b</sup> Aph. V. 60. <sup>c</sup> Morb. Mul. 1. 44. <sup>d</sup> Lib. 2. cap. 7.



In like manner are the *Menses* wanting in those that *give Suck*; because the exuberant Blood is carried to the Breasts to be converted into Milk, for the nourishment of the Foetus: which *Hippocrates*<sup>a</sup> not only remarks, but also very *mechanically*<sup>b</sup> explains, by what means it is chiefly directed to the Breasts. In these then, because there is no *Plethora* in the Vessels, the *Menses* are retain'd without Injury, and therefore ought not to be provoked. But if they should flow also in a Woman who *gives Suck*, there must needs still be a *redundancy* of Blood in her, after what has been expended for the supplying of Milk; therefore the *Menses* are chiefly found in *lean Nurses*, these being for the most part turgid with Blood.

So entirely does the *menstruous Flux* depend upon a *Plethora*, that if the uterine Vessels are somewhat too strong, or obstructed by any disorder, the Blood opens itself another Passage; therefore some other Evacuation frequently supplies the place of the uterine Flux. There are many Instances in Authors of Women who, upon a suppression of the *Menses*, have had, at a stated time, salutary discharges of Blood by the *Hæmorrhoids*<sup>c</sup>, at the *Nostrils*<sup>d</sup>, by the *Pores of the Skin*<sup>e</sup>, by *Urine*<sup>f</sup>, and *Vomit*<sup>g</sup>: which *Hippocrates*<sup>h</sup> in his *Aphorisms*, rightly lays down as a token of a *Crisis*. But if this auxiliary Evacuation be suppressed, very bad Symptoms ensue, as is sufficiently proved by repeated Experience.

<sup>a</sup> *Morb. Mul.* 1. 99.      <sup>b</sup> *Nat. Puer.* 21 & 22.      <sup>c</sup> *Sennert. Prax. lib.* 3. *Bonet. Med. Sep.* 36.

<sup>d</sup> *Dolæus* 636.      <sup>e</sup> *Salmuth. c.* 3. *Obs.* 36.      <sup>f</sup> *Borrich. Med. Sep.* 37.

<sup>g</sup> *Dec. 2. Cas.* 6.      <sup>h</sup> *Aph. V.* 32 & 33.      <sup>z</sup> *Hæchstetter.*

Without doubt this periodick Flux, (for it is salutary) let it flow from what Channels soever, is excited by a *Plethora*, and ought to be termed the *Menstrua*; for these are not denominated and distinguished so much by the *Place* of Evacuation, as by the *Quantity* and the *Time*: which yet are more disposed to be thrown forth by the *Uterus*, as we said, unless there be some Disorder in the uterine Passages; which is always the case, when the Blood is discharged any other way. In this case then, Nature herself relieves the Women labouring under a *Plethora* by an *Hæmorrhage* of one sort or other. The same is done, if an Evacuation be made by opening a Vein artificially, when in an healthy Body the *Plethora* is in fault. But in those who have this discharge orderly by the *Uterus*, letting Blood in the Arm always lessens, and very often puts a stop to the *Menses*. After the same manner, if the Woman be plethoric, *Bleeding* prevents an *Abortion*. Surprising indeed and very apposite to our present purpose, is the Case of a certain Woman related by *Platerus*<sup>a</sup>, “ in whom, after the *Uterus* was taken away and  
 “ cut out, the *Menses* for the future, when the  
 “ time of her Purgation approach’d, flow’d thro’  
 “ the adjacent *Anus*, at a stated Season, and of a  
 “ proper Colour. Being restored to health she  
 “ lived a long time after, making use of no other  
 “ Remedies, than sometimes opening a Vein in  
 “ the Foot, when the *Menstrua* were but slowly  
 “ discharged by this later way. It is very  
 manifest that in this Woman the *Plethora* was

<sup>a</sup> *Observ. Med. lib. 3.*

accumulated the same, as before the Uterus was cut away, and that the Menfes flow'd according to Custom: but by what means these could be promoted by *bleeding*, when they flowed but somewhat slowly, shall be shown in what follows. There is a Relation in *Zacutus*<sup>a</sup> of the Menfes breaking forth periodically by the *Thumb*, which if by chance they flow'd in a smaller Quantity a *Pain* in the *Head* and a *Fever* came on. Nor indeed is it so surprising that the Menfes should be discharged by the *Thumb*, since there is frequent mention made in Authors, of Blood being evacuated by the *Fingers*<sup>b</sup>. In one there was a Flux of Blood from the *Thumb*<sup>c</sup> every full Moon, from Infancy to the Age of twenty four Years; at first indeed it amounted but to 3 4. and then after the sixteenth Year to 16 ss. Which Flux being at length rashly stopped, he was thrown into a *spitting of Blood*. In another, the Blood flowed from the *fore Finger*<sup>d</sup>, almost every Month, for twelve Years, to the quantity of 4 Pints: in which case indeed the following Particulars seem to be well worth our notice, 1. That if this Evacuation was restrained, there arose a very sharp *Pain* in the Arms. 2. That the seldomer the Period returned, so much the more *plentifully* was the Blood discharged. 3. That the Flux was always *increased* by *drinking*. All which Particulars agree very well with the *Phænomena* of the *Menfes*.

<sup>a</sup> *Prax. Hist.* 1. 3.  
*Transf. numero* 272.

<sup>b</sup> *Mercat. Morb. Mul.* 469.  
<sup>d</sup> *Ibid.* 171.

<sup>c</sup> *Philos.*

It will not be impertinent in this place to mention that periodick Flux of Blood which is also found sometimes in *Men*. There are some, in whom a stated Evacuation is made by the *Hæmorrhoids* <sup>a</sup>, in others there is observed a periodick *Hæmoptœ* <sup>b</sup>, and in some again a *bloody Urine* <sup>c</sup>, returning at certain seasons. For such a Flux as this, takes its rise from a *Plethora* after the same manner as it does in *Women*, and conduces very much to health; but if this customary Discharge should be suppressed, a Distemper ensues; an Instance of which *Salmuthus* gives us <sup>d</sup>, in a Man, “Who, upon the stoppage of bloody Urine, which used to return periodically, was troubled with a great streightness and compression of his Breast, and a very great difficulty in Breathing, of which he died in a very few Days.” After the same manner as *Ulcers* and *Issues*, by which the Humours have been for a long while discharged, if they are suddenly dried up, are seldom without danger.

This also we may observe, that upon the suppression of this periodick Evacuation in these *Men*, the Health is not only destroyed, but that exactly the same Symptoms arise as do usually in *Women* destitute of a monthly Relief; so that if the suppression be of any long continuance, they become plainly *Hysterick*. Into which Distemper also they easily fall, who lead too *idle* a Life; from which indeed we have already shewn that a *plenitude* does arise. But

<sup>a</sup> *Amat. Lust.* l. 5. 3. *Barthol. c.* 5. 53.

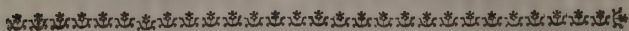
<sup>b</sup> *Salmuth. c.* 2. 3. & 18.

<sup>c</sup> *Id. c.* 3. 47.

<sup>d</sup> *Ibid.*



But if such a *Plethora* encrease in the *Men*, as to excite a periodick Flux, and if the same Symptoms arise, upon a failure in this Flux, as do in Women upon a suppression of the *Menses*, why should not then a *Plethora* occasion also the *Menses* in a *Woman*, and bring on those Distempers which proceed from their being suppress'd?



## CHAP. IX.

*Of those things which either promote or retard the Menses.*

**H**AVING therefore explained the *Phænomena* of the menstruous Flux, it may not perhaps be amiss to examine a little into the strength of those things, by the intervention whereof, the *Menses* are *sooner* or *later* brought down: for these things being well understood, if at any time this Flux should be vitiated, we shall not only better find out the *Cause* of that Disorder, but also undertake the *Cure* with the greater Success.

Among those things which *sooner* bring down the *Menses*, the chief are, a *Fever*, *Coition*, *drinking much*, *violent Motion*, *Vomiting*, *Sneezing*, *Anger*, the *hysterick Passion*, the *suppression of a customary Evacuation*, and *Plants* called *Emmenagogues*: All which either introduce a *plentitude* into the Blood, or irritate the Vessels with a certain *Stimulus*.

For in a *Fever*, since the *velocity* of the Blood

is always encreased, and frequently too the *quantity*, the greater also will be the *momentum* with which it strikes and distends the sides of the Canals: the Blood being therefore thrown into Motion, will easily break thro' the tender Vessels of the *Uterus*, in the manner we have already explain'd. Which, tho' they have been indurated by *length* of Years, do not always resist the Blood boiling in a Fever; as it happen'd in a certain Woman of whom *Bobnius* relates<sup>a</sup>, that being *seized* with a Fever she had a return of the *Menses*, altho' fourscore Years old.

In the same manner is the menstruous Flux very often promoted in the *Small-Pox*, namely, by a *Fever*, which, since it usually comes on the Day before the *Crisis*, as Practitioners observe, may perhaps bring away some of the peccant Matter, and give a turn to the Distemper. Therefore that excellent Writer and Practitioner *Sydenham*<sup>b</sup> rarely checked the *Menses*, if they came upon the *Small-Pox*, but suffer'd them to take their course. Hence *Hippocrates* tells us<sup>c</sup>, that *acute Fevers* are solved by the coming down of the *Menstrua*. In like manner *Forestus*<sup>d</sup> observes, that a *continual Fever* was terminated in a plethorick Woman, by the *Menses* flowing for seven Days. But if this *critical Flux* should be disturbed, there often ensue very great Disorders in the *Breast* or *Head*, as *Borrichius* observed<sup>e</sup> in three Girls.

By *Coition*, besides that Motion with which

<sup>a</sup> *Circ. Anat.* p. 243.

<sup>b</sup> *Morb. Acut. Hist.* 289.

<sup>c</sup> *Coac. Pren. s.* 226. <sup>d</sup> *Lib. 1. Obs.* 20. <sup>e</sup> *Act. Hesn. vol.* 2. 195.

the uterine Vessels and the other Parts of the Body become turgid and hot, the Blood upon the admission of the *Semen* becomes more intensely rarified, and circulates thro' the Canals with a greater velocity, so that it may easier break thro' any Impediments. Therefore *Coition* is reckon'd by *Hippocrates* <sup>a</sup> to attenuate and heat the Blood, and to prepare an easier passage for the *Menses* <sup>b</sup>. That this Motion of the Blood is caused by the *Semen masculinum* is apparent enough from those Symptoms which the Women are seized with at the time of *Conception*. And for this reason is it, that *Coition* is commonly esteemed the last Remedy in a menstruous Suppression: Upon which account it is every where recommended to the Women by *Hippocrates*. Which however, if it should be *immoderate*, will also excite an *immoderate* Flux; as is experienc'd by *pregnant* Women, who for that reason frequently *miscarry*.

How a *Plethora* may be brought into the Blood by *plentiful drinking*, and consequently a more rapid Circulation, is sufficiently plain from the thing itself. By *violent Motion* not only the heat of the Blood is encreased, but its Particles also are rendred thinner and more fluid: For the contraction of the Muscles, which is caused by *violent Motion*, not only carries off the more serous part of the Blood thro' the Pores, but also by compression attenuates and comminutes that which circulates within the Canals; so that the velocity being encreas'd, the more will the *momentum* of the fluid encrease, and the greater

<sup>a</sup> *Diat.* 2. 36.

<sup>b</sup> *Genitur.* f. 7.

will be the *distension* of the Vessels; whence a freer Passage will be opened for the Blood. Thus the Menfes often break forth unexpectedly in Persons who are dancing.

To *violent Motion* may be referred *Vomiting* and *Sneezing*<sup>a</sup>, in which not only the Ventricle and Diaphragm are extremely moved, but also the adjacent Uterus is so agitated and shaken, that the Vessels being broke by this Collision, give way to the Blood. The same is done by the convulsion of the Body in hysteric Fits, as *Platerus*<sup>b</sup> observed in a Virgin.

How the *Passion of the Mind* introduces new motions into the Blood, is perhaps difficult to explain; but that they do so is most certain. In *Anger* especially the Heart is very strongly contracted, the Pulse becomes quicker, the Eyes sparkle, and the Cheeks glow: All which argue the Blood to be carried on with a very *rapid Motion*, and that therefore it strikes against the sides of the Canals with the greater impulse; which, if it strike with much vehemence, the uterine Vessels are easily separated.

By the *suppression of a customary Evacuation* are the Menfes promoted, because a greater *Plethora* is accumulated in the Blood; as, on the other hand, if too great an Evacuation has preceded they are suppressed, because there is then a failure in the *Plethora*.

*Emmenagogue Plants*, since they abound for the most part with a *volatile Salt*, incide and attenuate the Particles of the Blood, and throw

<sup>a</sup> *Hildan. c. 3. obs. 58.*

<sup>b</sup> *Obs. Med. p. 191.*



them into a brisker Motion. We shall hereafter discourse of their Virtues and manner of operating; let it suffice in this place only to remark, that there are no *Emmenagogues* but what, by some means or other, encrease the *momentum* of the Blood: But the *momentum* of the Blood being encreased the *Menses* break forth.

Hither also may be referred an acrid, thin and plentiful Diet: Examples of which may every where be met with in Authors.

There are other things which bring down the *Menses* sooner than ordinary, but they may be all reduced to these Classes, which we have just now run thro'; for they either impress some *force* upon the Vessels, or bring on a *Pletthora* in the Blood; as do those also which we have just explain'd: but if they always act after this manner, and produce the like effects, it is probable that these also are Instruments of *Nature* in bringing down the *Menses*.

If any one should object, that in a *Fever*, *violent Motion*, &c. the Blood is only rarified and carried on with a brisker Motion, but that it by no means labours under a *Pletthora*, he may remember that the true *Pletthora*, with respect to the Vessels, arises from this *rarer* texture of the Blood. For if the particles of the Blood, either comminuted, or by what means soever divided, possess a larger space, they will as much distend the sides of the Canals, as if the quantity of Humours were encreased: Thus the Blood being rarified, there will be a *Pletthora* with regard to the Vessels. It may also be replied, that most

*Fevers*

*Fevers* take their rise from a *Plethora*, after the same manner as the *Menfes*.

On the other hand, those things by which the *Menfes* are retarded, are *Immoderate Cold*, *Sorrow*, *a sudden Fright*, *too great an Evacuation*, *incrassating Diet*, *a crudity of Humours*, *astringent Medicines*: And all these indeed either encrease the *Lentor* of the Blood, or diminish its *momentum*.

For as the Blood is rarified, and the Fibres relaxed by *Heat*; so by too great a *Cold* the Vessels are the closer constricted and grow stiff. In a *Plethora* therefore in a Woman, since the quantity of Fluid is redundant, the Vessels constricted by the Cold deny a Passage; nor are they however so capacious, as that the Blood may be carried freely enough thro' them: whence it is necessary that some part of the Blood should at last stagnate in the smallest Channels; but by its *stagnating* the motion of the Blood will be gradually diminished, and a *visciditv* will arise. Thus upon two accounts are the *menstrua* retarded by the Cold, because it both constricts and strengthens the Vessels, and also occasions a *lentor* and slowness in the Blood: hence there will be a less force in the fluid for bursting of the Vessels. Therefore *Hippocrates* attributes a paucity and suppression of the *Menfes* to the *cold Air*; which he also reports to be epidemical in the Northern Countries<sup>a</sup>. But if the *Cold* should seize the other Parts of the Body, and the *Uterus* remain *unhurt*, if there be at this time any

<sup>a</sup> *De Aire* 48.

Flux it promotes it ; for the Perspiration being impeded, there is a greater supply of Humours to be evacuated by the *Uterus*, which is *untouch'd with the Cold*. Thus oftentimes, about the end of the Flux, the Blood breaks forth more plentifully in those Women who put on their *Shifts damper* than usual ; the *Menses* being immediately renewed in these Persons, altho' they seem to have been over.

With *Sorrow* there is always joined a slower Motion ; therefore if Fear and Sadness continue any time, *Hippocrates* pronounces a Melancholy near at hand<sup>a</sup>. Besides, in *melancholy* Folks there is observed a *slow Pulse* and a *pale Face*, on the account of a lesser impulse of the Blood ; for by the Motion being diminished, there is caus'd a slower progress of the Blood to the *Brain*. In like manner are the Spirits more heavily derived from the Brain to the *Heart* : the *momentum* therefore decaying, the Blood will not so easily break thro' the Vessels.

The Reason is the same in a *sudden Fright* ; for by that the Spirits are entirely dissipated, so that the Heart being destitute of strength, it labours very much, and is hardly able to drive the Blood forward, whence a slower circulation of the Blood and a weaker *Momentum*. Thus an Hemorrhage at the Nose is oftentimes stanch'd by sudden *Fear*.

That the *Menses* should be stopped, or at least retarded, if too great an *Evacuation* has preceded, is apparent enough ; for the Blood is wanting which should provoke the Flux. Thus after

<sup>a</sup> *Apher.* 6, 23.

Childbearing many Women intermit two or three Periods; inasmuch as the Humours are almost exhausted by the Flux of the *Lochia*. In like manner are the *Menstrua* diminished from a very long Illness, because there is either no supply of the Blood, or it is expended upon the nourishment of the Parts. *Baths* and *Stoves* by promoting the Sweat too much diminish and retard the *Plethora* and consequently the *Menses*. The same also may be noted of old *Ulcers* and *Issues*. I knew also a Woman, who having discharged too great a quantity of Urine after drinking of *Tea*, was at the next Period free from the *Menses*: another also was exempted for 3 Months, from too plentiful a Blood-letting. I have also found the *Menses* wanting in Women in a *Salivation*, in whom indeed this has been singular and remarkable, that the *Menses* have broke forth from the *Uterus* the Day before a Flux of the *Saliva*, but were prevented by the discharge of the *Saliva* from the Glands. Thus, the Passage by the lower Parts being shut up, the Blood has immediately flowed forth at the *Nostrils*, and in that quantity as was wont to be discharged from the *Uterus*: and then, during a two Months *Salivation*, it remained quiet within the Vessels. The same holds also in Women, if the Copia of Humours is otherways diverted: therefore in a *Dropsy Hippocrates* <sup>a</sup> tells us, that the *Menses* are suppressed; and that they become fewer, and are at length wanting, if a *Dropsy* encrease in the *Uterus* <sup>b</sup>.

<sup>a</sup> *Morb. Mul.* 1. 2.

<sup>b</sup> *Ibid.* 1. 85.



The Menfes also are obstructed by an *incrassating Diet*, and a *crudity of Humours*: because, since the Chyle is more viscid, the Blood almost always stagnates in the *Capillaries*, the Spirits certainly are more difficultly and sparingly separated from the Blood, from whence a weaker Circulation, and a smaller Force. Thus are the Menfes often suppressed in those, who use a Milk Diet too plentifully, or eat chalky Substances, as is the evil Disposition in the *Green-sickness*. The same is brought to pass by an *idle Life*, and drinking too great a quantity of *cold Water*; whence *Hippocrates*<sup>a</sup> tells us that the Menfes are very much vitiated and diminished by *raw and cold Water*, as is also the *Milk*. From which, being imprudently drank, *Forestus* says, that there not only follows a *suppression of the Menfes*, but also sometimes *death*<sup>b</sup>.

Lastly, By *astringent Medicines* is there occasioned a slower flux of the Menfes, because they both strengthen the uterine Vessels, and render the Blood more viscid and cohesive: a very remarkable Case of a menstruous Suppression thus brought on is related by *Actuarius*<sup>c</sup>. But how such Effects do arise from *Astringents*, shall be explained hereafter, when we shall discourse of the disorders of the menstruous Flux, and their Cure.

This also should be noted of those things, which either *promote* or *retard* the Menfes, that if they are used too soon or to excess, they be-

<sup>a</sup> *De Aq. s. 7.*  
*Urin. 2. 12.*

<sup>b</sup> *Lib. 28. ob. 3.*

<sup>c</sup> *De Prævid.*

come, what Authors call *evident Causes* of the menstruous Purgation, being both wholly suppressed, and flowing beyond measure.



## CH A P. X.

*Of the Symptoms which arise from a suppression of the Menses.*

SINCE there occur disorders of the Menses no less grievous than contrary, namely, an *immoderate Flux*, and a *too great retention*, besides, since from one or other of these that *Iliad* of Distempers peculiar to the Women is almost always derived, (for *Hippocrates* teaches us that they must arise, when the Menstrua are *too many* or *too few*) it will not be amiss to explain the Reason of so many and so great Symptoms arising from the *Menses being vitiated*. But because a *diminution of the Menses* is by far the most frequent Distemper, and almost *epidemic* among *Virgins*, we will begin our enquiry with that; for as much as there is hardly found any Disease in *Girls*, which has not this either for its Cause, or Attendant.

There are various degrees of the *diminution*; for the Menses either flow too *sparingly*, or too *slowly*, or also very *difficultly*, or, what often happens, not *at all*: but the severest Symptoms of all follow upon a *suppression*: which whatever *Medicines* are capable of removing,

the same also are some way or other good against a Diminution: so that if the suppression of the Menfes be fully explained, the other Species of a *Diminution* may very easily be understood and cured.

Therefore the Menfes being obstructed, the supervening Symptoms are not so certain and *diagnostick*, as in other disorders, as almost all the diseases with which the human Body is afflicted. And first indeed, the *suppression* being yet recent, those Symptoms chiefly rage, which we have mentioned to invade at the approach of the Flux, a Pain and Heat in the adjacent Parts, Head-ach, a loss of Appetite, and Faintness: how these things answer to a *Plethora*, has been shewn already. Upon these a long Train of Evils ensues, an *Inflammation of the Uterus*, sometimes also a *Gangrene*, a *Pulsation of the Arteries*, a Pain in the Back and Joints, a *Vicissitude of Heat and Cold*, *Varices in the Veins*, *Tumours chiefly in the Legs, and Feet*, and *Hypochondres*, an heaviness and weakness of the whole Body, Gripings and Inflations of the Belly not unlike the Colick, *Flatulencies and Murmurings*, *Vomiting*, *Anxiety at the Heart*, a Cough, *Dyspnæa*, *Asthma*, *Consumption*, *Palpitation of the Heart*, and *Fainting*, a very acute Pain in the Head, about the *Synciput and Occiput*, heaviness of the Eyes, *Vertigo*, sometimes an *Apoplexy and Madness*, a *Paleness*, *Fluor Albus*, *hysterick Fits*, a *Globe creeping upwards as it were chiefly in the Throat*, *Urine sometimes dripping, sometimes suppressed*, the *Belly Costive*, an *Eruption of the Blood from*  
other

*other Places.* These Symptoms usually arise from a menstruous Suppression, different in different Persons; which, however, may, all of them, not unaptly be deduced from a *Plethora*.

But since some of these are derived only from an encreased *quantity* of Blood, others again from *qualities* also vitiated, we must see what disorders an encreased Quantity, or a *Plethora* will chiefly bring on. But because a *Plethora*, if it be regarded *by itself*, cannot, as has been shewn in the *6th Chapter*, occasion a suppression of the *Menses*, it follows, that we must look for the Cause of it in the *Vessels*: inasmuch as every Suppression, a *morbid* one at least, is derived either from a disorder in the Vessels or in the Blood. The uterine Vessels therefore being thus constringed, that there is no Passage open for the Blood, because of that *redundancy* of Humours which we have explain'd, the *momentum* of the Blood is encreased, because not only the *quantity* is encreased, but also the *velocity*; which is always, if there be no *Lentor*, in a *ratio* of the *Quantity*. For the more copious the quantity of Blood is, so much greater will be the secretion of Spirits: but since the power of the Heart in the circulation of the Blood depends upon these, the Contraction will be the stronger and more frequent; whence also a *swifter* circulation of the Blood thro' the Vessels. Since therefore both the *quantity* and the *momentum* of the Blood is encreased, there will arise also a more intense Heat in the Humours, and a stronger *dilension* of the Canals, and consequently whatever proceeds from



a *too great distension* : Such as are those Symptoms which are wont to come on very often at the *approach of the Flux*; to which also may be added the *Tumor*, and *pulsation* of the Vessels : and these indeed those Women chiefly suffer, in whom the suppression is caused by the *tenacity of the Vessels* : Therefore the *diagnostick Sign* that the Suppression proceeded from a disorder in the Vessels, is a *tensive Pain* about the *Uterus*, a *swelling of the Veins*, and a *florid Countenance* : Which will also be the more certain, if the *Pulse* becomes very *strong*. For there will be in a *Plethora*, which has not yet vitiated the *quality* of the Blood, a *Pulse strong, full, and quick*; *strong* indeed, because since there is a greater *copia* of Blood, there will be also a larger secretion of the Spirits : Thus the Heart being better supplied with Spirits, and more strongly contracting itself, it will protrude the Blood into the Arteries with a greater impulse; which will therefore vehemently strike against the sides of the Arteries, and excite a *stronger Pulse*. Besides, since in a *Plethora* a greater quantity of Blood is contained in the Canals, it will also possess a larger space, and thrust the Coats of the Arteries more outwards, or the *Pulse* will appear *fuller* to the Finger. A *Plethora* will likewise bring on a *quicker Pulse*, because the Blood flows both more plentifully into the *Ventricles* of the Heart, so that the Heart will be sooner excited to Contraction by a certain *stimulus*; and the Spirits also are more plentifully derived into the muscular Fibres of the Heart; so that the Heart

can more frequently excercise its Motion. Whence there will be a *quicker Pulse* in the Arteries.

After this manner will the *Pulse* become quicker both in the *Stroke* and in the *Time*, till the *Plethora* shall attain its utmost encrease; for there is a certain degree of plenitude, beyond which the *quantity* cannot be encreased, without injuring the *quality* of the Blood. This danger from a *Plenitude* was very well understood by *Hippocrates*; for he asserts, that *Wrestlers*, who have acquired the *utmost degree* of good Health, cannot continue long in that state; because if any thing farther be added, it is not void of danger<sup>a</sup>; therefore he advises, that this *good habit* be quickly *solved*. For a *Plethora* cannot long encrease, but that it brings on also a *Lentor* of the Blood. Inasmuch as at the approach of the menstruous Flux, there is that *distension* of the Vessels which we have before explain'd, because the *Quantity*, and consequently also the *momentum* of the Blood is encreased by a *tenth Part*; if the *Menses* should be suppressed for *two Periods*, the quantity of the Blood will be almost a *fifth Part* greater than usual, unless the other Evacuations have been encreased; and therefore after the same manner will that *pressure* encrease, with which the sides of the Vessels are pressed by the circulating Fluid; which no one will suppose can be long sustained by the Vessels without injuring their strength, who remembers how greatly they labour at the coming on of the

*first Period.* And this *Lentor* indeed is derived from a *Pletthora* three ways. 1. It may arise from the quantity itself, which becomes so excessive turgid within the Vessels, that these however distended, cannot afford room enough for the circulation of the Blood, unless the Fibres wholly fly asunder, so that, the bulk of the Fluid being too great for the size of the Vessels, the redundant Blood will suffer the greater resistance. By which it comes to pass, that its Particles being repulsed, as it were, and retarded both by the Coats of the Canals, and also by the preceding Liquid against which they are continually rubbed they meet together in a narrower space, or coalesce more *tenaciously*: which will likewise gradually stagnate in the *Capillaries*, because they are too much encreased in bulk; whence the Circulation being again something impeded through these very small Vessels, the greater will be the resistance of the Globules among themselves in the other Canals, and consequently a stricter cohesion, or a *Lentor*. 2. *The motion of the Heart being at length diminished in a Pletthora* will bring on a *Lentor*. For when the Blood Vessels are swelled beyond a certain degree, they will so strongly constrict the adjacent Nerves, not only in the Brain, but also in the Heart itself, that there will be a smaller influx of Spirits into the Fibres of the Heart, whence *a weaker motion in the Heart*. The less therefore the Impulse is, with which the Blood is protruded, so much easier is it retarded by any resistance whatever, and the more  
readily

readily therefore is a *Lentor* brought on. 3. *The lessening of the thinner Parts* promotes also a *Lentor* in the Blood. For since the plethorick Blood very much distends the Vessels, they on the other hand press against the Blood by a certain reciprocal Action; so that its particles being repulsed by the Coats of the Arteries endeavour to recede from Pressure: by which means, whatever there is *thin* and *watery* in the Blood is pressed forth both at the *Pores* of the Vessels, and at the *secretory Ducts*: Thus the more fluid Particles being continually thrown forth, the *compages* of the remaining Blood must necessarily become much more close and constringed. Therefore if the *Menses* flow not at all, *Hippocrates*<sup>a</sup> tells us, that they become, with regard to the Distemper, either *thick*, or *viscous*, or *glutinous*. So that altho' these following Symptoms may proceed from a *Plethora*, yet for the most part, they owe their rise to a *Plethora* joined with a *Lentor*; at least, upon the coming on of a *Lentor* they grow worse: which *Lentor* however, since it proceeds from the *Plethora*, does not in the least hinder that the *Plethora* be acknowledged the cause of those Symptoms, which supervene upon a *suppression* of the *Menses* from a disorder in the Vessels. And this the Reader is desired to remember, that a tedious repetition of the same things may be avoided.

But when a *Lentor* has been added to the *Plethora*, that *vehemence* of the *Pulse*, which is peculiar to a *Suppression* arising from the *Vessels*,

<sup>a</sup> *Morb. Mul.* 1. 19.



vanishes; inasmuch as the Pulse so abates of its former strength, that now at last it becomes *weak, slow, and unequal*. For a *Lentor* being brought on, there is a smaller secretion of Spirits upon the account of a closer compacture of the Blood : but there being a smaller influx of Spirits, and the Heart being more feebly contracted, the *weaker* will be the projection of the Blood into the Arteries. From whence also arises a *feeble Pulse*. Add to this also, an increased *weight* of the Blood in a *Plethora*: Thus, since a greater Bulk is to be moved, the Heart will throw out the Blood with a fainter impulse. The *weakness* of the *Pulse* will still increase, because the quantity of the viscous Blood being greater, there will be a greater *nisus* and friction of the Particles against one another, and their divulsion from one another more difficult: whence the velocity of the Blood will be less, because of a greater resistance, and consequently a *weaker Pulse*. Farther, the *velocity* being diminished, the Blood, which ought to turn into Spirits, is more *slowly* carried on to the origins of the Nerves: Therefore those Spirits, which are now lodged in the Nerves, being less protruded, flow more heavily into the Fibres of the Heart; whence the Heart is contracted at the longer Intervals, and the *Pulse* becomes *slower*: The *Pulse* will likewise be *unequal*, both with respect to the *Stroke* and the *Interval*; because new *Chyle* being almost continually carried into the *lentescent* Blood, there cannot be an equal temperature of the whole Mass of Blood, and the  
same

same cohesion of all its Particles ; therefore since one part of the Blood will be thinner, another again more viscid, according to the various texture of the Blood sliding by the mouths of the Nerves, the quantity of Spirits secreted will be various, namely, a greater from the more lax Blood, and a less from that which is more constricted : Thus the Spirits being *unequally* derived to the Heart, the contraction of the Heart will likewise be unequal, not only according to the *time*, but also the *Impulse*. In like manner, an *unequal Crasis* of the Blood which flows into the Ventricles of the Heart, will cause an *unequal Pulse* ; for the *Systole* of the Heart more slowly and feebly projects the *sizely* Blood, that being more compact and *renitent* ; but the same Force sooner and more strongly throws out the *thin* Blood, it being capable of making but a smaller resistance.

The same holds also in regard to the Pulse, if the Suppression be derived from any other Cause than that we have alledg'd, namely, the vitiated *quality* of the *Blood* ; for altho' it may various ways become vitiated, yet by none so much as to be capable of restraining the Menses, unless there also be a *Lentor* ; therefore, in this case, the *Lentor* is to be looked upon as the only disorder in the Blood, by which a *Suppression* may be brought on, what we have already said do sufficiently evince. Thus, after the same manner as a *Plethora* at length brings a *Lentor* into the Blood, so a *Lentor* likewise causes a *Plethora* ; inasmuch as the *capillary* Arteries being obstructed by the thick Blood, that portion

of the Blood which ought to be thrown forth every Month, is amass'd within the other Vessels. Thus, by whatever Cause the Menfes may be suppress'd, a *Plethora* will at last arise, which how it brings on those Symptoms, which usually follow from a Suppression of the Menfes, is now more distinctly to be explain'd.

The quantity of Blood therefore being redundant in the *uterine Vessels*, since some part of it firmly adheres, and cannot be carried off by the slender Capillaries; the *Arteriola* in which this Obstruction begins, will be gradually thrust more and more outwards, by that Blood which continually glides thither; which, upon an Heat succeeding because of the *nifus* of the Parts, will, in like manner, grow hot, and bring on an *Inflammation*: which frequently happens when the Menfes are suddenly restrained in the *Flux itself*. The *Inflammation* continuing, if the solid Parts should be corroded and lacerated by the Humours, an *Ulcer* ensues: sometimes also, if it be attended with a Corruption, a *Gangrene*. Instances whereof may be met with in *Hildanus*<sup>a</sup>.

There is a vehement *Pulsation* in the *Arteries*, because the Menfes being suppress'd there is such a redundancy of Blood, that, upon the account of the *Quantity*, it both distends the Coats of the Canals *more widely*, and also *strikes* them more strongly, because of the encreased *Momentum*. Therefore this *pulsation* of the *Arteries* is observed chiefly in those Persons in whom the Menfes are newly suppress'd, by any *Distempe-*

<sup>a</sup> *Cent. 2. obs. 62, 63, 64.*

*nature of the Vessels.* For when the Blood has once contracted a *Lentor*, so that its Circulation is something retarded, that *pulsation* in the *Arteries* ceases, because of the weak *momentum* in the Blood, tho' at the same time there should be no want of a *Plenitude*. Inasmuch as the Blood growing *sizey*, the fewer Spirits are secreted; whence the Heart performing its Motion very feebly, the fluid is carried with a fainter impulse against the Coats of the Arteries; therefore that *pulsation* sensibly decays.

There is often a *Pain* in the *spine* of the *Back*, because the *Medulla Spinalis*, as it is endued with the most exquisite sense, so it is wont easily to be affected by that *pressure*, which arises from the Arteries being distended. Therefore a *Pain* in the *Back* is reckon'd the *diagnostick* Sign of an eruption of the *Small-Pox*; which is indeed excited in the *Small-Pox*, as well as in a suppression of the *Menses*, by too great a *plenitude* of the Vessels. The Distemper continuing, there will arise also a *Pain* in the *Joints*, because of the exquisite sense of the *Periosteum*; by which it comes to pass, that, since the Blood offending both in *Quantity* and a *Lentor*, above measure distends the Vessels, which are inserted into the Bones by the intervention of the *Periosteum*, that fine Membrane is much divided, which yet will be, for the most part at the *Joints*, because the far greater number of the Vessels pervades the *Periosteum* about the *extremities* of the *Bones*.

The *vicissitude of Heat and Cold* may very easily be deduced from what we have said in the



8th Chapter concerning an *Intermittent Fever* : for this *vicissitude* is nothing else than an *Intermittent Fever*, tho' in a much smaller degree. Hence *Foreſius* <sup>a</sup> tells us, that a *Quartan* has ensued upon a ſuppreſſion of the Menſes. And indeed this alternate acceſſion of *Heat* and *Cold* is no inconfiderable Argument, that the Blood even then begins to grow *ſizey* in thoſe Perſons in whom the Menſes are ſuppreſſed. Therefore *Hippocrates* <sup>b</sup> reports, that thoſe Women in whom the Menſes do not flow in the *third* Month, are ſeized with an *erratick Fever*, and an *Horror*.

The *Varices* in the *Veins* of the *Feet* and *Legs*, ariſe not only from an *exuberance* of the Blood, but from its regreſs into the *Vena Cava* being ſomewhat retarded. For a *Plethora* being accumulated, the *Uterus* is ſo diſtended and ſwelled, that it muſt neceſſarily much compreſs the *Iliac Branches* ; and by this compreſſion it muſt retard the reflux of the Blood thro' them. Thus the circulation in the *Legs* being very languid, the *Veins* will ſwell ; in which, becauſe there are diſtinct *Cells*, as it were, by the interpoſition of *Valves*, the Sides will not ſwell *equally*, but will form certain *knotty Tumors*, which are called *Varices* ; namely, in thoſe *Spaces* which are comprehended between two *Valves*. But the farther the *Veins* are diſtant from the Heart, ſo much the more turgid the *Varices* become, becauſe the *altitude* of the incumbent Fluid being greater, the preſſure alſo

will be greater at the *Extremities* of the Canals. Upon the coming on of the *Lentor* the *Varices* will still be more greatly swelled: because, the *velocity* of the Blood growing languid, its return thro' the *Iliac Veins* must be much slower.

But if that distension from the *Plethora* should continue something too long, the Fibres of the Sides being separated and disjoined by the impulse of the Blood, will so divide, that the Humours may easily ooze thro' their Chasms; thus a passage being once opened into the Interstices of the Vessels, there will be a continual dropping; whence the *Tumor* will gradually encrease. Which will arise chiefly in the *lower Parts*, as the *Feet*, *Legs*, and *Hypochondres*; because, the return of the Blood to the Heart being more difficult and slow in these *lower Canals*, and the bulk of the incumbent Fluid greater, as has been already shewn, there the *Nisus* against the Sides of the Vessels will be greater, and consequently an eruption of the Fluid into the Interstices more easy. Hence is it that few Women, in whom the *Menses* are suppressed, are free from these *Tumors*: In some also they resemble the *Rheumatism* and *Gout*, from which indeed *Hippocrates*<sup>a</sup> affirms the Women to be wholly exempted, unless the *Menses* should be wanting. We may also reasonably conclude, that these *Tumors* proceed from a *Plethora*, because Women of a *moist Temperament*, in whom the *Menstrua* continue long, are sooner swelled,

upon the Flux being suppressed : Such a Temperament as *Hippocrates* observes to be peculiar to the *Western* <sup>a</sup> Women, as he calls 'em ; inasmuch as that Climate appears to him so *cold and watry* as to occasion in the Inhabitants, both a *suppression of the Menses*, and consequently *Tumors*. And indeed these *Tumors* are for the most part *lax* ; however they are observ'd to be *hard* in the *Abdomen*, like a *Knot*, or a *Tubercle* ; in which it is remarkable, that they do not continually encrease, but are one while swelled, and another while wholly subside ; so that these *Tumors* may be reduced to the *Hysterick Symptoms*, of which we shall hereafter discourse. Such *Tubercles* *Hippocrates* <sup>b</sup> observes about the Groin, upon the retention of the Menses. But if the suppression should be of long continuance, and a *Lentor* brought on, the circulation becomes gradually so languid, that the motion through the *Vasa Minima* being diminished, the Particles of the Blood cohering tenaciously together, may easily bring on *obstructions* in the other Canals, the *Lymphatics* especially, which are the tenderest of all. Thus the *viscidty* of the Humours, joined to the *laxity* of the Fibres, will bring on a *Dropsy*, such an one as *Forestus* <sup>c</sup> describes in a suppression of the Menses. Frequently also a *Dropsy* arises in the *Uterus* itself, as is remarked oftentimes by *Hippocrates* <sup>d</sup> : which Distemper indeed usually affects *Virgins*, according to the same *Hippocrates* <sup>e</sup>, because in them

<sup>a</sup> *De Aër.* 12.

<sup>d</sup> *Morb. Mul.* 1. 2.

<sup>b</sup> *Nat. Puer.* 7.

<sup>e</sup> *Morb. Mul.* 1. 87.

<sup>c</sup> 19. 34.

the Menfes are more eafily fuppreffed, as fhall be fhewn hereafter. In like manner if the other Evacuations, as the *Hemorrhoids*, *Urine*, *Diaphoresis*, &c. fhould be fuppreffed, a Dropfy very frequently enfues, becaufe of the *Plethora* heaped up in the Body: befides that daily obfervation made of Gluttons and Drunkards ftill very much favours our Opinion of a *Plethora*, that they are more fubject to a *Dropfy* than other Men.

That thefe diforders, which arife from the Canals being overcharged, will be hurtful to the *Stomach* chiefly and *Inteftines*, will clearly appear to any one who confiders the infinite number of Veffels creeping to thofe Parts. Thus a certain *Inflation*, upon the account of the plethorick Humours, is felt in the Coats of the Veffels: which fince it intercepts the influx of the Spirits thro' the Nerves, as has been mentioned, the *periftaltick Motion* of the Ventricle and the Inteftines, by which the Aliments are reduced into a thin *Chyle*, becomes very languid. So that there being a fainter motion in thefe Inftruments in the preparation of the Chyle, becaufe of the fcarcity of Spirits, the Chyle is not only more *flowly*, but alfo more *imperfectly* comminuted: whence alfo it is accumulated in a greater quantity in the *primæ viæ*, and occafions a certain fenfe of *plenitude*. The Chyle will be ftill more *crude* and *viscid*, if there be a *Lentor* in the Blood; for fince in a *Lentor* the motion of the Blood is more languid, and the cohesion much more tenacious, there will not  
only



only be a lesser derivation of Spirits into the *Muscles*, but also a smaller secretion of liquid in the *Glands* of the *Ventricle* and *Intestines*: so that the *Aliments* being defrauded of that *Liquid*, with which they used to be moistned and made soft, cannot be duly dissolv'd; from thence a longer stay of the *Chyle* in the *Intestines*, and its consistence thicker. Therefore a *costiveness* is almost always an attendant in a suppression of the *Menses*: both because the *motion* of the *Intestines* being *diminished*, the *Fæces* are less thrust downwards, and also because they can pass on but slowly upon account of their *driness*. Hence is there another apparent reason, why a *Lentor* should at length be necessarily added to a plethorick Blood, inasmuch as the *Chyle* is less comminuted, because of the motion of the *Stomach* and *Intestines* being diminished in a *Plethora*, and therefore becoming thicker it is circulated with the Blood. So true is the Opinion of the *Ancients*, that what is crude in the *first* Concoction, is never digested in the *second* or *third*. And it is indeed apparent enough, that this *Lentor* of the *Chyle* quickly ensues upon a menstruous Suppression, because the first complaint of Women labouring under a suppression of the *Menses* is almost always of a disorder in the *Ventricle*. Hence the Blood being render'd thicker cannot pervade the very minute Vessels in the *Face*; whence *pale and discolour'd Cheeks*.

But the *Chyle*, if it be too long detain'd in these Passages will contract those Disorders which are usually found in *stagnating Liquors*, of  
which

which sort are *Corruption* and a *Sowerness*: But since the *Chyle* cannot become *putrid* without some *motion* of the Parts, whatever is contain'd in it will be also more strongly agitated; which, if it be *inwardly* detained it will excite *Flatulencies* and *Grumbings*: if it be cast *forth*, a *Belching*. And *Gripings* in the Stomach and Intestines are divers ways occasioned, both because the plethorick Blood *inwardly* distracts the Fibres of the Canals with great vehemence, and because the Chyle being now changed into an *Acid* pricks and vellicates them *outwardly*: for upon both these accounts will a *Pain* arise: which if it be very intense, it will irritate the muscose Coat of the *Stomach*, and that therefore being violently contracted, will bring on a *Vomiting*.

An *heaviness* is felt in the *Body*, because the usual Evacuation of the *Menses* being prevented, both the *weight* of the *Body* really encreases, and the *strength* also is diminished: which whenever it fails, the *Body*, altho' it be indeed *lighter*, however feels *heavier*. For if you take away half the strength, which ought to sustain the weight, it is the same thing as if you should double the load. But a *decay* in the strength follows from a *Suppression* of the *Menses*, because the Blood Vessels both in the *Brain* and in the other parts of the *Body* are so excessively swelled, that they greatly press and constringe the adjacent *Nerves*; so that there is both a smaller secretion of the *Liquidum Nervosum*; and also a lesser derivation to the *Members* according

cording to the quantity of the Liquid secreted. Therefore the Spirits being after this manner intercepted, there arises a *decay in the Strength*. Thus, upon a suppression of the Menfes, there follow *those two kinds of a Plethora*, which are settled by *Authors*; for a *Plethora* daily encreasing *with regard to the Vessels*, at length also there succeeds one which is termed so with *regard to the strength*.

Since the redundant Blood loads the Canals after this manner, the *Glands*, as being Convolutions of the most slender Vessels, and not supported with Flesh, will sooner be distemper'd than any other Parts of the Body; and among these none sooner than those which are inserted into the inner Coat of the *Trachea*; which we every day experience from an *impeded Perspiration*, or, as it is commonly called, a *catching of Cold*. The Perspiration being impeded, the *Glands* of the *Trachea* are swelled, because the cutaneous Pores being obstructed, a greater quantity of Blood is derived to the other *Glands*, whence a greater quantity of Matter is *secreted* by 'em; thus the *Tracheals* being fill'd with this greater quantity of Humours, become turgid and stuffed up. Therefore when the viscid Humour has been once lodged in the *Glands* of the *Trachea*, it so presses and vellicates the nervous Branches, with which the *Glands* are every way encompassed, that the *Muscles*, to which these *Nerves* are subservient, must necessarily be excited to a Contraction: but the *Muscles* of the *Trachea* being contracted, the *Air* is thrown forth

forth by the *Mouth*, or what is the same thing, there is a *Cough*. Which, if it is not accompanied with any *Dyspnæa*, we rather believe to proceed from these *Glands*, than from the *Lungs*; because if the redundant Matter fell upon the *Lungs*, it seems scarce able to excite a *Cough*, unless it also brought on at the same time a *difficulty* in *Breathing*: which is indeed very common in a suppression of the *Menses*. For the Blood remaining in the capillary Vessels of the *Lungs*, the *Bronchial Vesiculæ*, which are every where accompanied with *Arteries*, both labour under too great a weight, and excite a certain sense of *heaviness* and *anxiety*, and being also compressed into a narrower space, they become less capable of taking in and expelling the *Air* alternately: so that the Blood becoming daily more stagnant, the *respiration* is not performed without great difficulty. Thus *Hippocrates* writes that a *Dyspnæa* is brought on by drinking too plentifully. But the respiration may be still more greatly injured, if the *Muscles* of the *Thorax*, as it usually happens, are either so stuffed with the peccant Matter, or destitute of *Spirits*, either upon the account of a too great *Plethora* or *Lentor* of the Blood, that they cannot duly discharge their office; and neither *elevate* the *Ribs* forcibly enough, nor *depress* them: whence there is a smaller expulsion of *Air* from the *Vesicles*, and a greater effort of the *Lungs* in breathing. In like manner a *Dyspnæa* sometimes arises, or is at least en-



creased, by the *Uterus* and *Hypochondres* being inflated; because, the *Diaphragm* being protruded upwards into the *Thorax*, the Cavity of the *Breast* is so streightned, that there is not space enough for the *Lungs* fully to expand themselves; whence a difficulty of Breathing: To which disorder they are mostly subject, who are *narrow Chested*, as is experienced by *Gibbose* Persons. But if this disorder should fix upon the *Lungs* for any time, an *Asthma* will ensue, differing from a *Dyspnœa* only in degree.

And these Symptoms will indeed arise in the *Lungs*, altho' the plethorick Humours should be still detained *within* the sanguinary Canals: but if they should at length flow *out* of the Vessels and should fix their seat in the *Bronchial Folliculi*, or rather in their *Interstices*, they will distend them greatly on every side; whence a *Vomica* will gradually encrease: which word indeed, if we would distinguish a *Vomica* from a *pulmonary Pthisis*, is applicable to those Humours which are thrown forth *into the Lungs*, yet still contained within a proper *Vesicle* or *Cystis*; thus, because the *Vomica* has no communication with the *Bronchia*, or at least lies very deeply hid, there will not be any discharge of *Pus* by *Coughing*. Nor in the *Interstices* only, but also in the *Glands*, with which the internal Coat of the *Bronchia* very much abounds, may a *Vomica* arise: inasmuch as these *Glands*, altho' they are scarce perceptible to the Eye in an healthy Body, may by any distemperature be very much distended, and grow large: which

we frequently observe in the other *Glands*, as in those of the *Pericardium*, *Pleura*, *Peritonæum*, &c. which in a sound state are imperceptible. I have seen these *Vesiculæ* more than once, yet never found them so conspicuous, as I did in a certain Woman, who died of a *Tabes*, occasioned by a suppression of the *Menses*. In this Woman the whole *Lungs* on the left Side were so stuffed with a purulent matter, as to approach nearly to a *Schirrus*: upon an incision with a Knife there proceeded *Pus*, not running abroad on all sides, but included in *distinct Vesicles*, which were indeed very *turgid*, although not *broken*: that I might be thoroughly satisfied in this affair, I washed some of these *Vesiculæ* in warm Water, so, that all the *Pus* being at last exhausted, they were exhibited to the Eye inseparable and entire. But if these *Vesiculæ* should be at length inflamed and burst asunder, an *Ulcer* being made, a *Tabes* ensues. Of which indeed the most frequent Cause assigned by Authors, is either a suppression of any customary Evacuation <sup>a</sup>, or an immoderate Feeding: inasmuch as that *Plethora*, we are pleading for, is either way brought on. But *Morton* <sup>b</sup> affirms that the most usual rise of *Consumptions* in Women is from an Obstruction of the *Menses*; which *Hippocrates* <sup>c</sup> pronounces *mortal*, when derived from this Fountain.

Nor does it fare better with the *Heart*, as to its usual *contraction and remission*, in a suppression of the *Menses*: for the *Humours* being ac-

<sup>a</sup> *Willis Pharm. Rat.* 82.

<sup>b</sup> *Phthisiol.* 3. 9.

<sup>c</sup> *Præd.* 2. 13. *Morb. Mul.* 1. 6.

cumulated within the Vessels, till they are almost ready to burst, the Blood, which nearly fills the whole Trunk of the *Aorta*, much more strongly resists the Liquid, which is protruded by the Heart, than when there was a lesser Plenitude in the Canals: for the *resistance* of the Blood is, as the *copia* of the *Particles*. Thus the liquid, being impeded by this obstacle, that it cannot flow forth freely, swells up to a much greater quantity than usual within the *Ventricles of the Heart*, therefore the Heart both labours very much under too great a *weight* and is almost *suffocated*: the Spirits in the mean time being compressed in the motive Fibres, and excited as it were by a certain *Stimulus*, exert their Strength more briskly, that they may protrude the Blood forth with an impulse sufficiently strong. But the Heart being more vehemently contracted, the *Cone* rises higher towards the *Sternum*, and impinges against the *Ribs* with a certain Stroke, which is therefore called a *Palpitation*. Upon the account of this *resistance* of the Blood in the Arteries, the Heart must necessarily be very strongly contracted, because that Force, with which it endeavours to throw the Blood forwards, being as it were reflected and repulsed, falls back again upon itself; so that the impulse, which used to be made towards propelling the Blood through the *Arteries*, is exerted against the *Fibres* of the *Heart*, whence the Heart is more violently shook and thrown higher towards the *Ribs*. In like manner, if the *Plethora* should very plentifully encrease,

encrease, the *Heart* also will *palpitate* at each Pulse of the Arteries. Farther, the *palpitation* will become more troublesome, if a *Lentor* in the Blood should be joined to the *Plethora*; because the Blood Globules cohering more closely, that resistance which is made in the Trunk of the *Aorta*, will be greater. Therefore a *palpitation* is almost a constant attendant in those Diseases, in which the Blood is found to be very *sizey*, as in a Rheumatism, Hysterick Affections, a Chlorosis and also a Cachexie <sup>a</sup>.

Besides, the *Plethora* encreasing every day more and more, the Heart sinks under too great a *copia* of Blood; inasmuch as there is not force enough sufficient for the moving so great a weight. The Motion therefore of the Heart being suspended, the *Pulse intermits*; and because the circulation of Blood is stopp'd for the present, there is no secretion made of the Spirits in the Brain; whence a *deliquium Animi*, or a *Swooning*. The contraction of the Heart may also be prevented by that *pressure* which arises in the *Brain* from the overcharg'd Vessels, and which intercepts the passage of the Spirits thro' the *Nerves*. Farther, the *coronary* Vessels of the Heart, since they are very much distended, do also compress the adjacent Nerves; whence the influx of the Spirits being stopped, the Fibres grow idle, and there is no Blood thrown from the Heart.

How a *Plethora* occasions a Pain in the *Head* we have shewn in another place; therefore

<sup>a</sup> Willis Phar. Rat. 263.



*Celsus* says <sup>a</sup>, if there be a suppression of the *Menses*, that very *sharp Pains* in the *Head* must necessarily arise. These indeed will seem *heavy*, by reason of that *pressure* only, which the *Plethora* exerts against the Canals on every side, especially if there be a *Lentor*; and attended also with a *Pulsation*, inasmuch as the Blood is amassed more copiously within the *Arteries*, and propelled with a violenter impulse, the Humours will *strike* more forcibly against the Sides, and the Fibres more greatly *distracted*, whence there will be excited a *Pain* with a *Pulsation*. However *Pains* are usually felt at the *fore and hinder part of the Head*, because the *Dura Mater*, in which the *Pain* is chiefly seated, is firmly connected to the *parietal* and *lambdoidal Sutures*; thus the Vessels, which are disseminated thro' it, are both *inwardly* very much distracted, and *outwardly* compressed by the Bones: therefore in these Canals, which are very much turgid with a *Plenitude*, and solidly compacted, there will be a sharper *sense of Pain*. Many also of the Vessels of the *Dura Mater* are carried thro' the small apertures of both *Sutures*, into the *Integuments of the Head*: So that from these perhaps no small part of the *Pain* arises, upon the account of the *Coats* being removed by the exuberant Blood, and the *passages* through which they pass being rendered narrower. Therefore those Persons in whom the *Junctures* of the *Sutures* are too closely knit together, are for the most part grievously afflicted with the *Head-ack*. It is very

plain, how stubborn *Watchings* are occasioned by such a *Pain* as this, if it be very violent.

This *Pain* indeed in the *Head*, in a suppression of the *Menses*, however familiar it may be, does not arise from any *sympathy* with the *Uterus*, but from the *structure* of the *Brain* itself: which being the most *tender* of all the *Viscera*, is less able to bear any injury than the other *Parts*. This ought also to be noted concerning the *Head* and *Lungs*, that that distemperature which arises from a *suppression of the Menses* is more easily and deeply fixed in them, than in the rest of the *Body*; inasmuch as these *Parts* are the softest of all; and make the least resistance to any influx of *Humours*. Therefore in almost every *Distemper* are they greatly afflicted. But a *Pain* in the *Head* and *Hæmoptoe* are wont frequently to follow, especially if the *Menses* are restrained in the *Flux* itself.

But the *Brain* being once affected, the *Eyes* upon the account of their nearness easily share in the misfortune, and labour under a like weight because of the overcharged *Canals*, and are also sometimes *swelled*: after the same manner as we observe those also to grow *heavy*, as soon as the *Spirits* become languid in the *Brain*, or what is the same thing, *sleep* creeps on. The *Disorder* still farther encreasing, the *Eyes* are so affected, as to bring on a *Vertigo*: the cause of which *Distemper* was first indeed explain'd by *Bellini*. For in it, whatever objects are presented to the *Eyes*, however they may be at rest and unmov'd, seem nevertheless to be *carried and whirl'd round*.

Inasmuch as the motion of external Bodies is no other way judged of by the Eyes, than by the change of place, into which come those *appearances* which are brought into the Eye, or the Images painted on the *Retina*; by what means soever the *distance* of the *Images* is changed, the *Object* will seem to be *moved*. But the *distance* may be *changed*, either because the *Object* is really moved, or because the Eye may be moved the *Object* being at rest, or, lastly, because the filaments of the *optick Nerve* may be moved out of their place. But the *optick Nerve* or the *Retina* being moved, the *Rays* emitted from the *Objects* do not fall from the same parts of the Eye, but different, according to the various motion of the *Retina*; so that while the *Images* change their place in the *Retina*, the *Objects* seem to be perpetually changing their places. Therefore since the *Arteries* scattered over the bottom of the Eye, are immoderately swelled with the plethorick Blood, the *Retina*, or the expansion of the *optick Nerve*, will be moved out of its place by the *pulsation* of the *Arteries* to which it is contiguous, therefore the Image of the *radiating* Body falling on it, will also change its place: whence the *Object* itself will also seem to be moved, or, what is the same thing, a *Vertigo* will ensue.

The *Vessels* of the *Brain* being thus *distended*, it may easily be conceived, how an *Apooplexy* may at length be brought on, a Disease near of kin to a *Vertigo*. Of this indeed, many Causes are assigned by Authors; which yet

*Wepfer* <sup>a</sup>, the most accurate Writer upon this Distemper, reduces to *two* classes, namely those, which may either obstruct the *Arteriola*, or, intercept the *Efflux* of the *Spirits thro' the Nerves*. The *Menses* therefore being suppressed, the *Plethora* gradually encreases so, as to bring on such a *Lentor*, as we have just now described: Which if it be too tenacious and compact, the Blood adheres to the small Vessels in the Brain. The Canals being therefore once filled, the obstruction is daily encreased by the afflux of the sily Blood, till it at length grows up to such a bulk, as wholly to shut up the Orifices of the *Arteriola*: Whence there will be no liquid convey'd from the Arteries into the *Nerves*, and therefore no sensation will remain in the Body. Thus in a short time *Death* will ensue. However, if the obstruction has not continued long enough, to shut up all the passages into the *Nerves*, but still some of the *liquidum Nervosum* may be derived through the Tubes, that Liquid, although it may not be sufficient to move the other *Muscles*, will yet briskly enough move the *Heart* and *Breast*: for the *Heart* is destitute of *Antagonists*, as are also many of those *Muscles* which serve in the Office of *Respiration*, therefore it will be excited to a Contraction with a much smaller quantity of *Spirits*; because that *Contranitency*, which arises from *Antagonists*, is taken away. So that the *Arteriola* being obstructed, all sensation may be extinguished, as also the motion of all the *Fibres*, unless in the *Heart* and *Thorax*,

<sup>a</sup> *Apopl.* p. 175.



in which, indeed, consists the nature of an *Apoplexy*. An *Apoplexy* may also be occasioned by the *efflux* of the Spirits through the Nerves being *intercepted*, although there be no *Lentor* of the Blood: Which, how it may be impeded by the *Arteries*, being above measure *dilated*, has been already shewn. In like manner, will Blood *extravasated* in the *Brain*, compress the Nerves and intercept the Spirits; which is wont frequently to happen in *plethorick* Persons. It is therefore observed that Persons of a *sanguine Habit*, and great *Drinkers*, are very often seized with an *Apoplexy*.

Since *Madness* is a *Delirium* without a *Fever*, whatever may bring on a *Delirium* will occasion also a *Madness*. But a *Delirium* arises from a various and perturbed motion of the Spirits; whence arise very incoherent *Ideas* in the *Brain*. But a perturbation of the Spirits will ensue, when their motion is too rapid, which easily happens in a *Plethora*, because the bulk of the Blood, and the impulse of the Heart are encreased; whence a greater attrition of the *Globules* in the Canals: Which since it is also made in the *Brain*, and presses the Nerves too violently, the *Tremors* of the Nerves will be confused, and therefore the *Ideas* also less distinct. Thus as *Madness* often follows upon any customary Evacuation <sup>a</sup> being suppressed, especially if the *Summer* has been *dry*, or they have *drank* any thing very *hot*, by all which a *Plethora* is brought on; therefore is it to be cured by *Evacuations*. There is an In-

<sup>a</sup> Willis Path. Cereb. 445. & 493.

stance hereof, very much to our purpose, in *Forestus*, who cured a Woman that grew *Mad* upon a suppression of the *Menses*, by opening of a *Vein*<sup>a</sup>. So true is that Aphorism of *Hippocrates*, that if *Varices*, or the *Hæmorrhoides*, happen to *Madfolks*, their *Madness* is brought to a *Crisis*<sup>b</sup>; the same is also to be said of the coming down of the *Menses*.

The *Fluor albus*, since it proceeds from the uterine Glands, easily breaks forth, if the Orifices of the Glands are something too open; which indeed nothing can more readily separate, than a *Plenitude* of Humours. Therefore as often as the *Menses* return, the *Fluor* is always suppressed; because the *Plethora* at the Glands is diminished: From which respite it is distinguished, whether this Disease be *Idiopathick* or *Symptomatick*. Thus the *Menses* being restrained, a *Fluor albus* arises from a redundancy of Blood; which is not only evinced by Reason, but confirmed also by Experience: Inasmuch as those Women, who are most subject to this Disorder in a menstruous Suppression, are of a very *pletborick Habit*. It is also to be observed, that those Women, in whom the *Fluor albus* flows more copiously, are less afflicted with the other Symptoms, which usually follow upon a suppression of the *Menses*. In some also the *Fluor albus* is found to *precede*, and as it were to *supply* the *place* of the *Menses*.

Since most of the Symptoms of the *hysterick Passion* are *Spasmodick*, as the Learned *Willis* has very accurately shewn, such an one is that

<sup>a</sup> *Lib. 10. obs. 24.*

<sup>b</sup> *Aph. 6. 21.*

certainly which we mentioned to arise from a suppression of the *Menses*, namely, the *rising* as it were of a *Globe* in the *Throat*, let us see how a *Convulsion* can be deduced from a *Plethora*. Of this indeed *Hippocrates* assigns two Causes, namely, *repletion* and *inanition*<sup>a</sup>; which if we should attentively consider, we shall better explain the reason of this Disease, than if we consulted the subtile *Hypotheses* of the Moderns. Inasmuch, as after this manner may that *Convulsion from Repletion*, which we are speaking of in this place, be illustrated: Which, since it is an *involuntary* Contraction and Inflation of the Muscle, will arise, as often as a greater quantity of Liquid is derived into the Muscle, than can be impeded by the command of the *Will*: Thus two *antagonists* being brought to an *æquilibrium*, if you should add to either of them any more Liquid, it will continually remain in a state of Contraction, till you shall have supplied the opposite one, with an equal quantity of Liquid. There will certainly be a greater influx than usual of this sort of Liquid into the *Muscle*, since the *Crisis* of the Blood is so unequal, that the Vessels in the *Antagonist* are somewhat obstructed by the sily Humours; by which it comes to pass that a greater quantity of Liquid flows into the Fibres of this other Muscle. The Liquid therefore being above measure redundant in the Vessels, the Contraction of the Muscle may be so strong, as not to be overcome by the command of the *Will*; but if there be a *Lentor*, the Liquid

<sup>a</sup> *Aph.* 6. 39.

will be still more detained within the motive Fibres, and therefore the stronger will be the Contraction. Thus if the muscose Coat of the *trachea* and *œsophagus* be inflated after this manner, there will be occasioned a sensation of a certain *Globe* as it were ascending towards the Jaws: At the same time also there will arise a fear of *Suffocation*, because the Muscles of the *Larynx* swelling in like manner, do not yield a free passage to the Air. And they are mostly liable to this Disorder, in whom the *Menses* return either at *uncertain Periods*, or flow *guttatim*. In like manner may the other Symptoms of the *hysterick Passion* be deduced from a *Plethora*; which are wont to follow, not only from a *suppression of the Menses*; but are also often occasioned by *Issues* and *Ulcers* being dried up: The same also we have remarked in the eighth Chap. of the Men, in whom any periodick Evacuation is restrained.

A *dripping of Urine*, which *Hippocrates* <sup>a</sup> often remarks in a menstruous Suppression, is easily deduced from a *Plethora*. For since the Blood Vessels, which are inserted into the *Bladder*, are greatly distended, they so compress the Nerves that the Spirits are much more sparingly and difficultly derived into the motive Fibres: Whence a smaller force in the Muscle for throwing forth the *Urine*. But after some time, the Spirits being more plentifully collected, the *Muscle* will press against the *Urine* with that *momentum*, as necessarily to propel a very small part of it;

<sup>a</sup> *Nat. Puer. 7.*



But by this Impulse, the Spirits being again exhausted, it will be compelled to suspend its motion, till it has received a fresh supply of Spirits: Thus, the obstacle being gradually overcome *at times*, the *Bladder* will discharge the *Urine* by *Drops*. But if the *Vessels* should be very much swelled, so as wholly to intercept the Spirits, then also will the *Urine* be altogether *suppressed*; because there is no force sufficient to protrude it out of the *Bladder*. There will also be a *suppression* of *Urine*, if the *Sphincter* of the *Bladder* being *convulsed* should shut up the Passage, or if the *Blood* should be so fizy, that no *Serum* can be secreted from it in the very slender Canals of the *Kidneys*.

The Eruption of the *Blood* through other Places in a suppression of the *Menses*, sufficiently shews that the Eruption is occasioned by a *Plethora*. For it would remain at rest within the *Vessels*, unless it was so redundant in quantity, that it required more room than the capacity of the *Vessels* could possibly allow. The *momentum* therefore being encreased, so as to surmount the impediments of the Canals, the *Blood* flows forth. This Eruption through *other places*, is more familiar in *Virgins*, than in those *who have had Children*, as *Hippocrates*<sup>a</sup> observes; for in *Virgins* the *Vessels* of the *Uterus* are very narrow and constricted, so that the usual discharge of the *Menses* through them may be sooner prevented: therefore the redundant *Blood* flows from the *other Canals*, where-

<sup>a</sup> *Morb. Mul.* 1. 9.

ever it finds a Passage. But in those who have *had Children*, the *os uteri*<sup>a</sup>, according to *Hippocrates*, lies more open to the passing Blood, *b. e.* as he explains it, the *Vessels*, because they are wont to be much *enlarged* and *widened* by the Flux of the *Lochia*, yield a freer passage to the *Menses*, whenever they are ready to flow forth: therefore he adds likewise that they more rarely labour under a menstruous Suppression; but that they easier bear a Suppression, if at any time it happens, both because they have been accustomed to *Labour-Pains*, and because the *Vessels* of the *Uterus*<sup>b</sup> are much *larger* in them, than in *Virgins*. But if in *Virgins* the Blood should be prevented flowing forth thro' any any other places, there ensues a *white Fever*, or *Chlorosis*; which is nothing but a *Congeries* of those symptoms, which we have already described.

Many of these symptoms oftentimes arise from other things, which bring on a *Plethora* with regard to the *Vessels*, as too violent exercise, immoderate drinking or heat, but chiefly from the stoppage of any Evacuation<sup>c</sup>: why may not the same things also be attributed to a *Plethora*, the *Menses* being suppressed?

Most of these symptoms which we have explained, are observed by that excellent Writer *Hippocrates*, to follow upon the *Menses* being suppressed; and which he also every where tells us, arise from a *Plenitude*<sup>d</sup>; as also the Flux itself

<sup>a</sup> *Ibid.* 1. 1.    <sup>b</sup> *Ibid.*    <sup>c</sup> *Willis Bellin. passim.*    <sup>d</sup> *Nat. puer. f. 7. Morb. Virg. 2. Morb. Mul. 1. 2.*

of the Menfes. That History, which he relates of *Phaethusa* and *Nymasia* is very remarkable; in whom, after a long suppression of the Menfes, the Body at length so much resembled a Man's, as that they became very *hairy* and *bearded*<sup>a</sup>. For the Menfes being retained, there was such an encrease of the *redundant* Blood, that it could by no means be contained within the Vessels; therefore the cutaneous *Pores* being gradually opened by the impulse of the Humours, the superfluous Part of the Liquid was carried into the *Hairs*. Sometimes also it is converted into Milk, which *Hippocrates*<sup>b</sup> mentions as a *sign* of a menstruous Suppression in a *Virgin*.

All Women are not equally subject to these Symptoms, in these the *Head*, in those the *Lungs*, and lastly in others the *Belly*, is chiefly affected: inasmuch as the nature of all *Fluids* is such, that the redundant Humour falls upon those Parts which are capable of making the least resistance: whence there is more room made in them for the affluent Matter. This weakness indeed of the Parts is as various in different Women, as are their Inclinations; nor may you find perhaps two Women, in whom the Symptoms exactly answer to one another in a menstruous Suppression. Which variety however of Symptoms is so little proper and peculiar to this disease, that it is common to it, with almost all others, especially a *Fever*.

<sup>a</sup> *Epid. lib. 6.*

<sup>b</sup> *Aph. 5. 39.*

## CHAP. XI.

*Of the Method of Cure in a suppression of the Menfes.*

HAVING now run through the symptoms in a suppression of the Menfes, and explained them agreeable to our Theory, it will not be amiss to carry this matter somewhat farther, and examine the method of *Cure*, that nothing may be wanting, which can be brought for the illustrating a *Pletkora*. Inasmuch as the only *intention* of *Cure*, is to renew that *Pletkora*, which may again bring down the Menfes.

But before I enter upon the *method of Cure*, it is to be observed that there is not always room for *Medicine* in a suppression of the Menfes, since every suppression is not *morbid*; therefore the Menfes are not to be provoked, because they ought not to flow. Thus they are wanting in those *who are with Child, or give suck*, without injuring the Health; sometimes also in Persons who are *gross* and *athletick*; for in these the redundant Moisture is thrown forth by the *Pores*, in those it is converted into *Fat*. In like manner if the Blood flows forth at any *other place*, the auxiliary Flux is wont to be salutary: which therefore should be scarcely moderated, much less restrained, if it be not attended with any grievous Symptoms. Lastly, If the Blood be *deficient*, if *too great* an *Evacuation*, if a *chronick Disease*, or *great want*, have preceeded, the Menfes are in no wise to be brought down,  
till



till the strength is recruited. Because the suppression is so far from being injurious to these Women, that it would rather occasion a Distemper, if the Flux should unseasonably be excited.

Since therefore every *morbid* Suppression is derived from a Fault either of the *Canals*, or of the Blood, the intention of Cure will also be double; the one to be directed to the *opening* the *Canals*, the other to the *amending* the *Blood*.

I. The signs of a Suppression arising from the *fault* of the *Canals* have been shewn already: which fault indeed is easily encreased in the *Canals*, if they either become too hard, by reason of their *natural dryness*, or are constricted by a sudden *cold*, so that the Fibres cohering now more closely overcome the *momentum* of the Blood by their resistance. If therefore the *Canals* are unmoveable, the *quality* of the Blood being unhurt, we must in undertaking the Cure either *lessen* the *impediment of the Vessels*, or *encrease* the *force of the Blood*.

I. In order therefore to take away the impediment of the Vessels, the *Fibres* are to be *relaxed*. To this end *external* Remedies are applied warm, namely, a *Suffitus*, *Baths* and *Fomentations* made of *emollient* and *penetrating* Herbs. The Particles drawn from the Plants either by *Water* or *Fire*, and received within the *Uterus*, by the assistance of the heat, so insinuate themselves into the Pores of the Vessels, that they separate and divide the Fibres from one another; but the contact of the Fibres being prevented,

the

the sides of the Vessels become wider, and more faintly resist the impinging Fluid: thus the force of the *impediment* being weakned, the Blood opens a passage through the Vessels. *Hippocrates* made use of these *external* Remedies very much: Which certainly take place, not only when the Suppression is caused by the *Vessels* becoming above measure stiff, but also when it is brought on by the Blood itself: Because, if the *Impediment* is lessened by the relaxation of the Canals, it is the same thing, as if the *momentum* of the Blood was encreased. Therefore, in a suppression of the *Menses*, *Hippocrates*<sup>a</sup> advises that *fomentations* preceed purging.

2. That the *Menses* may not be checked by the *constriction* of the *Canals*, the *force* of the *Blood* must be encreased. But since this Intention may be answered by the same method of Cure, as is applied in the other kind of Suppression, the Reader may deduce it from what follows.

This Suppression, which arises from a *fault* of the *Vessels*, happens indeed less frequently, yet is the most easy to be cured: Inasmuch as they for the most part yield to *external* Remedies, while the Suppression is yet fresh; sometimes also, especially in the Summer, they open *of themselves*. But if the hardness of the Vessels be inveterate, the *Plethora* daily encreasing, at length vitiates the Blood; whence another, and that a much frequenter cause of a Suppression of the *Menses*, has been deduced in the foregoing Pages.

<sup>a</sup> *Morb. Mul.* 1. 25.

II. When therefore a Suppression takes its rise from a fault of the Blood, or a *Lentor*, the Intention of Cure is wholly to be directed thither, that the cohesion of the Parts being taken away, that Impulse may be restored again to the Blood, with which it may break thro' the uterine Vessels. And for this purpose, the following things are chiefly prescribed by Physicians, *Bleeding*, *Cupping-glasses applied to the Legs and Frictions*, *Purging Vomiting*, and lastly, those Remedies, which are called *Emmenagogues*, as if they were *Specificks* in promoting the Menfes.

I. Therefore, for the removing the Suppression, *Hippocrates* <sup>2</sup> advises, if nothing hinder, the *opening of a Vein*: Which those Writers who have followed him, have also unanimously prescribed; however disagreeing about the Time when, and at what Part of the Body the Blood ought to be emitted. Some *beginning with Bleeding*, others again advising it but three or four Days before the Flux, after they have given *purging and emmenagogue Medicines*; and these indeed order it in the *Arm*, and those in the *Leg*. That we may better understand whose Opinion is to be preferr'd, we must enquire how *Bleeding* answers the *Intention of Cure*, or what is the same thing, how it restores the *momentum* of the Blood. The *momentum* therefore of the Blood, since it consists in a compounded Ratio of the *Quantity* and *Velocity*, becomes weaker by *opening a Vein*, unless the *Velocity* encreases in the same proportion, as the *Quantity* is diminished: But if the

\* *Morb. Virg. 2.*

Ratio of the *encreased Velocity* be greater than that of the *diminished Quantity*, the *momentum* will be greatly increased. The first Man who judiciously explained *Phlebotomy*, *Bellini* <sup>a</sup>, proves that upon opening a Vein, the velocity of the Blood is encreased; inasmuch as some part of the Blood being evacuated, much of that *Impediment* is taken away, by which the preceeding Blood, continually resisting the affluent Blood, retards its course; the Obstacle therefore being removed, so that there is a less *Nisus* of the Particles among themselves, the Blood will be carried *swifter* thro' the Vessels. But how much the *Velocity* will be quickned by *Bleeding*, or whether the *momentum* of the Blood will be encreased or diminished, the same accurate Writer <sup>b</sup> tells us, is to be collected from the various cohesion of the Parts. For whenever an *expansion* of the Blood follows upon opening a Vein, or when the *Compages* of the Blood is so rarified, that the Particles are separated from their mutual Contact; that *Velocity* encreases, which may cause a stronger *momentum* of the Blood; because there is both a smaller resistance of the parts in the Blood itself, and the Spirits are more plentifully carried into the Heart: Thus the *Crafsis* of the Blood being *expanded*, and thrusting the Arteries more outwardly, a *Pulse* will be excited. But if there be no *expansion* of the Blood, the quantity being lessened, the *momentum* of the Blood will grow languid, and because the Blood does not possess so large a space, as it did before, there will be

<sup>a</sup> *Sang. Miss.* p. 89, 94.

<sup>b</sup> *P.* 101, 102.



also a *smaller Pulse* in the Arteries. Here this learned Gentleman generally treats of the different manner of changing the *momentum* after *Bleeding*; in which thing indeed he has less satisfied his Reader, in that he has dismissed the Argument sooner than he should have done, and has suggested nothing, which may be accounted as a sign of what sort the *Crisis* of the Blood is, which is easily dilated by the opening a Vein: and again, of what sort that is, which cannot be expanded. For this not being understood, the Physician is uncertain, in what manner *Bleeding* will alter the Impulse of the Blood; which Remedy, whenever the event of it is doubtful, must be wholly laid aside in a Suppression of the Menfes, unless perhaps it be appointed for alleviating the vehemence of the *Symptoms*. For if the Blood should become *more viscous* by a quantity being drawn off, the secretion of the Spirits will not only be less, and consequently the Impulse of the Heart more languid, but that *obstruction* will also be encreased, which has for some time block'd up the *Capillaries*. Therefore when the Blood becomes very *viscous* in the *beginning* of the Disease, *Bleeding* does not seem to be very proper, unless it might be known by some certain Token, that the cohesion of the Blood may be taken away, or the Impulse encreased: But if this should be known, not even then is *Bleeding* to be prescribed for the bringing down the Menfes, if the *Velocity* can be encreased by any other method of Cure, although nothing be taken away from the *quantity*; for the *Plethora*, which

might

might still easier excite the *momentum*, is diminished. Add to this also, that there does not seem to be any necessity for so *sudden* an Evacuation, because the Distemper allows time enough for Medicine. Neither must this be passed by, that in those, in whom the Menfes are suppressed, the strength is generally so decayed, that they are not able to bear letting Blood, by which there is caused so sudden a change in the Humours. Nor are the Women easily perswaded to undergo this Remedy, who, when they are in Health, are very scrupulous in opening a *Vein* about the time of the Menfes; for it is an established *axiom* with them in Physick, and derived down from all Antiquity, that *Bleeding* checks the Menfes, if they are upon the point of breaking forth. But although *Bleeding*, if it preceeds any Remedies, bring so uncertain a Relief, because an encrease of the Impulse will not certainly follow; yet sometimes the Blood gives such signs of itself, that if any one very diligently attends to them, he will be enabled to open a *Vein* with success. Suppose a *full* and *weak Pulse* be such a sign; which is sometimes observed, when the Disease is not yet become inveterate. Therefore when the *Pulse* is found to be such, *opening a Vein* will encrease the *momentum* of the Blood. For when the *plenitude* of the Arteries is such, that the *Coats* may be farther stretched out, it is a sign that the *cohesion* of the Humours is not very great; for if they were very much condensed and constipated, the Particles would crowd into a narrower bulk, nor

would they thus extend the sides of the Arteries. Thus when the Blood is sufficiently fluid, the Arteries become turgid upon the account of the *plenitude*: But because the *copia* of Blood, or the quantity of Matter to be moved is encreased, but the *contractile* or propelling force of the Heart is not encreased, but is perhaps diminished upon the account of the *Pletthora*, since a greater quantity of Matter is to be moved with an equal or a smaller force, the *velocity* of the Blood must needs be less; therefore if the quantity to be moved be lessened, the same force, or a greater, being applied, (which must necessarily be done after *Bleeding*, if the *Pletthora* ran high), the *velocity* will be encreased; whence a more vehement impulse of the Heart, and a *stronger Pulse*. So that in this case the Blood being let out takes away the *weakness* of the *Pulse*, towards which indeed the laxer *Tone* of the Arteries contributes much; wherefore the Coats less resisting the affluent Blood, the *Stroke is lessened*. But the *Pletthora* decreasing in the Vessels after *Bleeding*, that *pressure*, by which the Nerves are constipated, upon the account of the Arteries being too much swelled, is diminished: So that the Spirits being more plentifully carried to the Heart, the Impulse of the Blood, and the *Tone* of the Vessels is restored; wherefore the *Pulse* will strike the Finger *more strongly*.

We have now seen what we must think of this Method, which begins the Cure in a suppression of the *Menses* with *Bleeding*: That perhaps may seem more agreeable, in which the Vein is not opened till Purgers and Emmenagogues have  
been

been first exhibited. For, it is very plain, from what we have said of the cause of encreasing the momentum in *letting Blood*, that Bleeding will succeed more happily after the use of *purging* and *emmenagogue* Medicines: For since in these the manner of operating is such, as to disjoin and attenuate the viscid Humours, as will appear from what follows, the Blood having been already comminuted and become less cohesive, a quantity being taken away, it is easier expanded, and acquires a stronger momentum. Therefore a *Vein* is opened *three Days* before the usual Time of the Period, that then especially a fresh Impulse may be added to the Blood, when the *Plethora* is at the height.

But in what part the Vein is to be open'd, is much controverted among Writers; however *Galen's* <sup>a</sup> Opinion seems the most eligible, who advises *bleeding* in the *Ankle*. For an Orifice being made, a greater quantity of Blood is derived not only into that Vein which is opened, but into all the rest which proceed from the same *Trunk*, as *Bellini* has demonstrated at large; inasmuch as the resistance is less at those Parts, where the Vein is cut, than in the rest of the Body. Therefore if Blood be let out of the *Ankle*, a greater quantity of Blood will be derived into the *uterine* Vessels, which take their rise from the *Vena Cava*, in like manner as the *Saphæna*: therefore since the Vessels are more greatly distended by a larger influx of liquid, a freer egress will be opened for the menstruous Blood. Thus *Mayerne* <sup>b</sup>

<sup>a</sup> *Curat. per V. S. cap. 11. 19.*

<sup>b</sup> *Morb. Intern. cap. 22.*



assures us that he has seen a surprising and sudden Effect from the application of *Leeches* to the *Hæmorrhoids*. In like manner when the exuberant Blood, in which there is no *Lentor*, shall be restrained by the *fault* of the Vessels, upon opening the *Saphæna* the Humours will both become greatly rarified, and also flow more copiously to the Uterus: so that upon both these accounts the *momentum* of the Blood will be encreased at the *uterine* Vessels, and discharge the *Menses* that way. From hence we may easily gather, what we are to think of *Lindanus's* Opinion so much talked of in *Etmuller* <sup>a</sup>, “ Who distinguishes the times, when the Vein is to be opened; for instance, when the *Menses* are *near at hand*, but do not yet flow, he orders a Vein to be opened in the Arm; but when they actually flow or are by some sudden accident checked, he then advises the *Saphæna* to be opened. But he thinks a Vein ought never to be opened in the *Foot*, unless the *Menses* actually flow, or the Flux be suppressed.” The reason of this Doctrine is thus explained by *Etmuller*, namely, “ That at the approach of the *Menses*, while the Blood is expanded and rarified, Nature’s whole effort is then to carry the Blood downwards; therefore if the Passages are slender, they cannot be immediately opened, because the flux of the Blood is in some measure checked by their being distended. When therefore the impulse of the Blood downwards is promoted by opening the *Saphæna*, more Blood is drawn

“ to the *Uterus*, and consequently the disorder  
 “ encreased; but if a Vein be opened in the *Arm*,  
 “ some part is revelled upwards, the Passages  
 “ are freed from the Pressure, and the Blood  
 “ more easily flows. The opening the *Saphæ-*  
 “ *na* will surely never provoke the *Menses*, unless  
 “ they should be restrained by Cold or a Fright  
 “ while they are actually flowing.” What sort of  
 reasoning this is, is plain enough of itself; for  
 it is supposed that the Blood is so *turgid* and *rare*,  
 that it might very expeditiously be thrown forth  
 by the Vessels, unless *by the Blood's being drawn*  
*downwards* the *Plenitude* itself should be an hin-  
 drance: which is so far from being consonant  
 to the Philosophy of Physick, that even com-  
 mon sense would by no means allow, that Vessels,  
 the more they are *distended* with Blood, should  
 be so much the less apt to give way. But if  
 the opening of the *Saphæna* can promote the  
*Menses* while they are *actually flowing*, and re-  
 move a *suppression* of them in the Flux, why  
 cannot it also bring them down when restrained  
 even *without* a Flux? how comes it that in one  
 case it should *restore* the *momentum* of the Blood,  
 in the other *diminish* it, since it carries the Blood  
 to the *Uterus* with the same force? By open-  
 ing a Vein in the *Arm*, since some part is *revelled*  
 upwards, the uterine *Passages* are *indeed freed*  
*from Pressure*, but the impulse growing languid  
 by reason of the *Pletthora* being diminish'd, the  
 Vessels are not so easily divided, because they  
 are less distended. But *Et muller* tells us, that this  
 observation greatly favours *Riverius's* <sup>a</sup> Opinion

of a *Plenitude*: “ That the *Menstrua* were always checked in a certain Woman, as often as a Vein was opened in the *Ankle*; but that they flow’d more copiously, upon bleeding in the Arm.” The reason whereof, because it seemed to clash with the common Tenets of the Physicians, was thus explained by the Gentlemen of *Montpellier*, namely, “ since that Woman was *Plethorick*, and suffered a suppression of the *Menses*, from too great a quantity of Blood distending the Vessels of the *Uterus* so, that they could not be sufficiently compressed, the Blood being drawn to those Vessels by opening the lower Veins, the obstruction was increased. But when a revulsion was made from the uterine Vessels, by letting out Blood from the upper Veins, and their fulness and distention was abated, then they could easier contract themselves for the making that natural and ordinary discharge, which is wont to be by the *Uterus*.” I suppose the Reader by this time perceives, that the difference between a *simple Plethora* and one joined with a *Lentor* has not been usually regarded: for it has been shewn that the *Menses* cannot be suppressed from *that*, and therefore the opening of the *Saphæna*, which encreases the *Plethora* at the *uterine* Vessels, is not prejudicial to the eruption of the *Menses*; but in *this* because there is an obstruction at the *Uterus*, *b. e.* because the viscid Blood stops in the capillary Vessels, the Humours being brought in a larger quantity to the *Uterus* by opening the *Saphæna*, and the

Blood

Blood flowing forth something more impetuously, there is a greater adhesion of the viscid Part to the Mouths of the Vessels; this Danger however from the *Saphæna* being opened, must not be attributed to the *Plethora* but rather to the *Lentor*. Therefore in this *Plethora* only, which is accompanied with a *Lentor* does *Lindanus's* Caution take place. And under this sort of *Plethora* did that Woman labour, whose case was just now taken out of *Riverius*. Therefore that Indication was well judged of by the Physicians, “ that by plentiful Bleeding in the “ Arm the *Plethora* should be diminish’d, (or if we would speak more properly, that by *drawing off a quantity*, the *velocity* and *momentum* of the Blood should be encreased) “ but afterwards by “ opening the inferior Veins the Blood should “ be again drawn downwards, chiefly about the “ time that the Patient used formerly to have “ the *Menses*: ” for thus the Blood having been more comminuted and divided both by the first Bleeding, and the *Emmenagogues* <sup>a</sup> which were exhibited, might easier be discharged by the capillary Vessels, if it received any new impulse from opening the *Saphæna* about the time of the Eruption. But the reason, why it is better to open a Vein in the *Arm* first, and then in the *Ankle*, seems to be this: that the quantity of the Blood being diminished by opening a Vein in the *Arm*, the *velocity* is encreased; but afterwards the *Saphæna* being opened, the Blood precipitates itself to the lower Parts, and aug-

<sup>a</sup> *Ibid.*



ments that *Plethora*, which is continually encreasing at the uterine Vessels; wherefore the *Plethora* and the *Velocity* being encreased, the *momentum* of the Blood is encreased also at their sides.

I have dwelt the longer upon this Argument, that the Reader might know, how doubtful and uncertain *general* Precepts are in Physick, unless the *Practitioner* is apprised of the nature of the Fluids, and those varieties, into which the temper of the Blood oftentimes unexpectedly runs.

2. The same Reason holds also with respect to *Frictions* and *Cupping-Glasses* applied to the *Legs*, as did in regard of the *bleeding* in the *Ankle*. For these, partly by their attrition against the Humours within the Vessels, and partly by carrying them off through the cutaneous Pores, cause the Blood to circulate more swiftly; and also to strike *more forcibly* against the uterine Vessels, by *deriving* them upon the lower Parts. Therefore they are generally made use of when the *Menses* are near breaking forth. I shall say nothing of *Scarification*, since that, as far as it relates to our purpose, must be looked upon as a species of *bleeding*. *Cauteries* applied to the *Legs* likewise bring down the *Menses*; because they occasion a greater afflux of Blood towards the lower Parts by their *Stimulus* and *Pain*.

3. The better to restore the impulse of the Blood, *purging* must be prescribed; which *Hippocrates*<sup>a</sup> tells us is therefore necessary in a suppression of the *Menses*. But since *some Purges*

<sup>a</sup> *Aph. V. 36. Nat. Mul. 20.*

exert their force in the *primæ viæ*, others again in the Blood itself, we must see what advantage will arise from either side towards correcting the Blood. Those indeed, whose action is confined to the *first Passages*, loosen the Belly wholly by their *stimulating* faculty, for by their *Stimulus* they so vellicate the Intestines, and urge them to Contractions, that whatever adheres to the *Peyerian Glands* is squeezed out very plentifully, whence the *Fæces* being loosened by the effluent Mucus, they are discharged by Stool. Thus the Stimulus of the Cathartick, since it drains the *Lymph* from the Glands in a plentiful manner, causes a greater afflux of Blood to the Intestines: for the *Lymph* being plentifully discharged by the Glands, there is a less resistance at those Parts. Therefore the resistance being decreased, the *velocity* of the Blood is somewhat encreased. Of this Class of *Purgers*, are *Manna*, *Cassia*, *Elect. Lenitiv.* and other things, which gently move the Belly. However almost all their Vertue consists in their freeing the *first Passages* from a load of Excrements; inasmuch as that change which they occasion in the Blood by that *derivation*, is so small as to be almost imperceptible.

To remedy therefore any disorder of the Humours, we must apply those *Purgers*, which are not only endowed with a *Stimulus*, but such as force themselves into the Course of the Circulation and alter the *Crasis* of the Blood. And that the stronger *Catharticks* are capable of doing this, is apparent enough. For since the efficacy

ficacy of all Medicaments seems to consist chiefly in their *Salts*, those *Purgers*, certainly, which abound with an *acrid* and volatile *Salt*, will more vehemently agitate the Humours. Their *Salts* therefore being carried into the Canals, so dissolve and divide the viscid Blood, that there is a less cohesion of the Particles: whence a more liberal secretion of Spirits. Therefore after the exhibition of a strong *Cathartick* the *Pulse* is always encreased. Thus upon two accounts is *purging* useful towards bringing down the *Menses*, both because it encreases the Velocity, and because it so attenuates the Blood, as that it more widely distends the Vessels: of this Tribe are the *Catharticks* made up of *Aloes*, *Jalap*, *Scammony*, *Elaterium*, &c. To which if any preparation of *Mercury* be added, the impulse of the Blood will be still more strongly excited; for nothing either *takes away* a *Lentor* more efficaciously, or sooner *opens* the *obstructed Vessels*, than *Mercury*; as we shall shew more largely, when we come to speak of the Vertues of the Remedies. But lest any danger should be suspected from *Catharticks*, it is to be noted by the way, that those Women, who labour under a suppression of the *Menses*, however weak they may be, are able to bear pretty strong *purging*: especially, if a *Paregorick* be exhibited, after the working is over.

4. Some advise *Vomiting* in a suppression of the *Menses*; which indeed, if it be prescribed for the sake of the Stomach, may be of much service; for it restores Digestion, and if it does not  
dimi-

diminish the *Lentor*, it certainly cuts off any supply: But if it be directed towards removing the cause of the Disease, it very rarely answers this Intention. For however an *Emetick* may augment the *momentum* of the Blood, and vehemently shake all the *Viscera* in its Operation, the *uterine Capillaries* are so stuffed up with a thick Matter, that let the Blood be furnished with any Impulse whatever, it will not be able to open itself a Passage through them, till, by the attenuation of the Humours, the obstruction of the *Arteriola* is removed. So that if we would make use of *Emeticks* for the bringing down the Menfes, they are then chiefly to be applied, when the Blood, though entirely free from any Fault, cannot be discharged, because of the *hardness* of the *Vessels*: For in this case, the impetus of the Blood being excited by *Emeticks*, will easier overcome the resistance of the Vessels.

5. That we may the more happily succeed in the Cure, we must perpetually make use of *emmenagogue* Medicines; which, by what powers they renew the Impulse of the Blood, we shall shortly have an opportunity of explaining more distinctly.

Thus having investigated, and in some measure explained the Nature both of the Symptoms and the Remedies, it will not perhaps be improper to add some *Cases* of a suppression of the Menfes: By which it may more fully appear that this *Theory* was not invented or contrived in a Closet, but that it is agreeable to *Experience*, from whence it is deduced. In which, altho' many



many things may perhaps be wanting, this I will be bold to assure the Reader, that that *Fidelity*, which ought chiefly to recommend an *History*, runs entirely thro' the whole.

### Case I.

Oct. 26. 1700.

A Certain Girl, eighteen Years of Age, and hitherto free from the Menfes, complained of a sharp Pain about the Loins, Knees, and Ankles. She also labour'd under a *Dyspnæa*, Nausea, and Gripings of the Stomach. Upon the least stirring there was a palpitation of the Heart. Her Countenance of a florid Colour. Her Pulse weak and slow. These Symptoms had continued violent for almost six Months; and, because I supposed them to proceed from a *viscid* Blood, as appeared from the *Pulse*, I judged this to be the *Indication* of the Disease, that *the Crasis of the Blood should be attenuated*: For the velocity being thus encreased, the Blood seemed to be furnished with a momentum strong enough to break thro' the uterine Vessels. That I might therefore effect this, I made use of the following Method. And in the first place I ordered a *Cathartick*, which might destroy the cohesion of the Humours, and make a freer Passage for the Blood thro' the *capillary Vessels*.

R. Calomelan. ʒi. Resin. Jalap. gr. 5. Tartar. Vitriol. gr. 4. M. F. Pulv. Cap. manè in Conserv. Ros.

This gave her only two *Stools*: From which, however, she found some ease of her Pain.

But

But let no one therefore doubt of the efficacy of this *Powder*, because it moved the *Belly* but very gently: For it is ill judging of the Powers of *Catharticks* by the number of *Stools*, as I have often found, especially in *Mercurials*; which, tho' they may sometimes work very little, do not however elude the Design of the Physician. For the chief *Intention of Purging*, at least in this Case, is to remove the strong cohesion of the Particles of the Blood: And that this may be effected by purging Medicines, has been clearly shewn already, tho' no large evacuation should be made from the *Belly*. But since the *Belly* is loosened by *Catharticks*, not only because the *Velocity* being encreased there is a greater secretion of Humours in the Glands, but also because the Coats of the Intestines are irritated by a *Stimulus*; if that *Stimulus* should be by any means lessened, the *Belly* will be less loosened. But the *Stimulus* may fail, when the *Cathartick* is wholly carried thro' the *lacteal Vessels*: Thus, when the *Purges* exert their force in the Blood itself, because the *Velocity* is encreased, the secretion in any of the Glands will be greater than usual; however it will by no means be larger in the *Intestinals* than in the others, because a *Stimulus* is wanting. But if a very small part of the *Cathartick* should remain in the Intestines, it will irritate the Vessels by its *Stimulus*, that there will be a greater quantity of Liquid thrown off from the intestinal Glands than from the rest: Which discharge, however, from the Intestines, will always be

less, in proportion to the decrease of the *Stimulus*. But if the Belly is gently purged, the other secretions are augmented by the *Cathartick*; and since it has this Effect, it attenuates and purges the Blood as much as if it occasioned frequenter Stools. Which may be proved from this, that there very seldom follows any Injury from these *Purges*, altho' they should not operate. And from hence perhaps we may rationally account for the various Effects of *Catharticks* in different Bodies, which purge some Persons very copiously, and others again more sparingly *downwards*: In those indeed, in whom the Mouths of the *Lacteals* are so open, whether it be natural, or from any disorder, that all the Medicine is easily transmitted into the Blood, the Belly is less moved: But in those, in whom the *Lacteals* are more closely united or obstructed, so that the greatest part of the *Cathartick* remains in the *Intestines*, the Coats are more strongly stimulated, and consequently a greater number of Stools.

But that the *Lentor* of the Blood might be effectually removed, and the *momentum* encreased, these following Remedies were prescribed, which we know from Experience to be very proper for that purpose.

℞. *Conserv. Absynth. Rom.* ʒ iii. *Æthiop. Min.*  
 ʒ i. *Chalyb. cum Sulph. pp.* ʒ ss. *Rad. Gentian.*  
*Curcum. pulver.* a a ʒ ii. *Syr. Garyoph. q. s.*  
*M. F. Elect.* Cap. q. n. m. ter in die hor.  
 Med. Superb. *Cochl.* ʒ 5. *infusi* seq.

℞. *Limat.*

℞. *Limat. Chalyb.* ʒifs. *Infunde in cerevisiæ tenuis lib.iii. per triduum.* Deinde add. *Rad. Gentian. incis.* ʒss. *Rub. Tinctor. Curcum.*  $\overline{a a}$  ʒii. *Summitat. Absynth. Vulg. Centaur. min.*  $\overline{a a}$  M. i. *Bacc. Junip.* ʒss. *Sem. Cardamom. min. Cubeb.*  $\overline{a a}$  ʒi. M. . *Fiat infus.* per diem. In colaturæ quolibet haustu cap. gt. 20. *mixtur. seq.*

℞. *Spir. Sal. Armon. Elix. pp.*  $\overline{a a}$  ʒii. M.

I designedly omitted *Bleeding*, both because the Girl, being weakly, could hardly bear so sudden an Evacuation, and also because I was afraid the *Impulse* of the Blood would be rather diminished upon opening a Vein, than encreased.

Oct. 28. In the Afternoon She complained less of her Stomach: The Pulse was stronger: And her Strength much encreased.

Oct. 30. The Menfes came down, of a laudable Colour. The Pain at her Loins and Ankles immediately vanished. The Flux continued for eight Days; during which Time, she was forbid the use of her Medicines: Which being however repeated after another Week, the Menfes flowed regularly again at the next Period, and the Girl entirely recover'd her Health.

## Case II.

Oct. 31. 1706.

A Woman, about thirty Years of Age, had not had the Menfes for the space of two Years. Upon the Detension of which, she was seized with a dry Cough, violent Dyspnæa, pal-



pitiation of the Heart, Pain in the Head, a Vertigo, loss of Appetite, Indigestion and Inflation of the Stomach, sometimes a Vomiting, decay of Strength, Night Sweats, a vicissitude of Heat and Cold, and a Trembling; sometimes the Blood broke forth at the Nostrils. The Pulse very weak.

*The Indications of Cure seemed to be three.*

1. *To restore a good Digestion in the Stomach.*
2. *To encrease the Impulse of the Blood.*
3. *To relax the uterine Vessels.* For the *Hæmorrhage at the Nose*, indicated some fault in them, as well as in the Blood.

That I might relieve the *Pains* and *decay of Strength*, I ordered the following *Cardiack*.

R. *Spir. Sal. Armon. Tinct. Croci. Laud. Liq.*  
*aa* ʒi. M. Cap. gt. 30. sæpius in quovis  
 vehiculo.

By these things the Pain was very much abated, and the Strength recruited.

Nov. 2. She took the *Cathartick* prescribed in the *former Case*, which purged her *six* times, and abated the *Dyspnæa*.

Nov. 3. She made use of the *Electuary* and *Infusion* described in the *former Case*: Not neglecting in the mean time the *Cardiack Mixture*, which not only relieved the *Pain*, but also restored the *Impulse* of the Blood. They must certainly be ignorant of the Effects of an *Opiate*, who prescribe it at *Bed-time* only to procure *Sleep*, as if the *Poppy* afforded no relief, unless it brought on a *Stupor*: But if *Opium* should be exhibited in small Doses, and those often repeated,

peated, according to the Exigency of the Distemper, the Blood by the means of so mild and efficacious a Remedy, would be sensibly furnished with those Powers which might in vain, perhaps, be expected from any other *attenuants*: Which Method indeed I have experienced to be not only void of all Danger, but also that it is seldom made use of without good success. For it will be shewn by what follows, that the Blood is very much comminuted and rarified upon the taking of *opium*.

But that the Vessels might the easier separate, the *Region of the Uterus* was mollified with the following *Fomentation*.

*R. Rad. Althæ. Lil. Alb.  $\overline{a a}$  3ii. Sem. Lini, Fœnugræc.  $\overline{a a}$  , iii. Flor. Chamamel. Aneth.  $\overline{a a}$  P. i. Majoran. M. i. Bulliant ex Vin. & Aq. part. æq. Liqueur sit pro fomentatione bis in Die applicanda.*

*Nov. 8.* The Pulse somewhat stronger; hardly any change in the *Symptoms*.

*Nov. 15.* Nothing new, except that the *Appetite* seemed to return, and the *nocturnal Sweat* vanished.

*Nov. 22.* A *whitish* Humour flowed from the Uterus, which ceased after *five Days*. I conceive this Humour, however white it might appear, should be termed the *Menses*, both because the Flux continued much about the usual Time, and stopped of itself, without the use of any Remedies, and also that upon this Evacuation all the Symptoms were changed for the better: Which, if it had been the *Fluor albus*, would

rather have been exasperated. Besides, there is frequent mention among Authors of *pallid Menses*.

*Dec. 1.* The Symptoms, altho' much milder, were not however yet removed. The following *Purge* was prescribed.

*R. Pil. Ruff. 3fs. Resin. Jalap. gr. iii. Ol. Sassafr. gt. i. Bals. Peruv. q. s. M. F. Pil. Mediocr.*

She likewise returned to the use of the *Electuary, Infusion, and Mixture*; which being duly taken, the *Pulse* grew stronger, and her Strength was recruited.

*Dec. 19.* The *Menses* were brought down of a pretty red Colour, which continued for *three Days*. Upon their breaking forth, the Symptoms were so much abated, that she complained only of some small difficulty in her Breathing, and a Pain of her Head. But repeating the Infusion, her Health at the Month's end, returned with the *Catamenia*.

### Case III.

*Oct. 20. 1702.*

A Certain Laundry-Maid, of a sanguine Habit, aged twenty four Years, caught Cold a Washing in a Flux of the *Menses*: She likewise washed her Legs with cold Water. Thus the *Menses* being restrained before the usual Time, they were wholly suppressed for the space of one Year, yet without any remarkable detriment to her Health: Which, I imagine, pro-

proceeded from her having been much accustomed to Labour and Exercise. But at the Year's end, she was seized with the following Symptoms, an heaviness and weakness of Body, Indigestion, a Pain in almost all her Limbs, a Cough, Dyspnoea, and a Paleness: Her Legs also swelled; there arose a Tumour on the *Tibia* so hard, that it could not be softened or suppurated by any *Cataplasms* or *Emplasters*. A languid and sluggish Pulse.

*The Indications of Cure* altogether the same, as in the *second Case*.

But to ease the *Tumour*, a *Vein* was ordered to be opened in the Arm: Which however did not succeed according to our Wishes. Therefore, that I might remove both the Tumour and the suppression of the *Menses* together, I prescribed, *Oct. 22.* these *purging Pills*.

*R. Pil. Cock. maj. 3ss. Calomel. 3i. Resin. Jalap. gr. vi. Syr. è Chalyb. q. s. M. F. Pil.* On that Day it did not so much as once move her; but on the following Morning it gave her *two* very large Stools.

*Oct. 23.* Still she found small relief. To encrease therefore the *momentum* of the Blood, the following *Infusion* was given.

*R. Limat. Chalyb. 3i ss. Rad. Zedoar. 3i. Fol. Absinth. Centaur. Min. a a M. i. Infund. tepidè in cerevisiæ tenuis lib. iii. per biduum. Colaturæ add. Tinct. Croc. 3ii. Cap. haustum ter in Die.*

She used also the same *Fomentation* as is described in the *second Case*.



Oct. 28. Her weakness was something relieved: The other Symptoms were nothing abated. But the Purge being repeated, the *Tumor* became milder.

Nov. 6. The Pulse encreased with the Strength. Therefore the Blood being thus more briskly circulated, that it might impinge against the uterine Vessels with a stronger Impulse, and so provoke the Menfes, the *Saphæna* was opened.

Nov. 11. The Menfes flowed, altho' not in a sufficient quantity. Her florid Colour returned again, and the *Tumor* with the other Symptoms vanished.

### Case IV.

Dec. 2.

A Woman of a good Habit, in whom the Menfes for more than four Years returned only every *second Month*, made great complaints of her Health. For she was troubled with a continual Drought, frequent Yawning, Dyspnœa, a sense of Cold inwardly, gripings of the Stomach, and sometimes of the Intestines, a very acute Pain of the Head, Lassitude and Faintness, a great Pain about the Back, Knees, and Arms, but no Tumor, a palpitation of the Heart, which, with that Pain about the Joints, had been encreasing for *six Months*. The Pulse slow, weak, and unequal. Upon opening a Vein there came forth very pale and watry Blood.

Therefore the chief Intention of Cure seemed to be this, that by opening and cleansing the Canals,

nals, the proper Crasis of the Blood might be restored, and the menstruous Flux excited at the usual Periods. And then some Care should be likewise taken towards *relieving the Symptoms*.

That the Canals might be freed from the viscid Humours, a Purge was prescribed.

℞. *Pil. Stomach. cum Gum. Succin. a a* ʒi.  
*Calomelan. gr. xvi. Resin. Jalap. gr. v.*  
*Castor. gr. ii. Syr. è. Spin. Cerv. q. s. M. F.*  
*Pil. 5. intra quatrimum ad quatuor vices*  
*repetend.*

Farther, that the Blood might be thrown into a brisker motion, and more duly mingled, I ordered as follows,

℞. *Conserv. Fumar. ʒii. Æthiop. Miner. ʒi.*  
*Syr. è Bacc. Samb. q. s. M. F. Ele& de quo*  
*cap. q. n. c. bis in Die superbib. Cochl. 5.*  
*Tinct. seq.*

℞. *Tinct. Chalyb. Lower. lib. 2. cui add.*  
*Tinctur. Castor. ʒi.*

Thus I endeavoured to relieve the Symptoms. But to *ease the Pain* I gave the following *Paregorick*.

℞. *Aq. Paralyf. Cinnamom. Hordeat. a a* ʒiii.  
*Diacodii. ʒiv. Laud. liq. gt. 100.*

Let her take six Spoonfuls going to Bed, and in the Day-time also when her Pain rages violently.

To raise her *Spirits* let her often take thirty Drops of *Sal. Vol. Oleos. in equal Parts of Canary and Water*.

When she is seized with a Fit of *Tawning* let her take 40 or 50 Drops of *Tinct. Castor*.

Lastly,

Lastly, To remove the *Pain* of the *Head*, a *Vesicatory* was applied to the *Neck*.

When the Gripings of her *Stomach* grew violent, she used the following Drink.

℞. *Rad. Gentian. incis.* ʒ i. *Fl. Chamæmel. Summit. Marrub. Cent. Min. Absinth. Vulg.*  
*aa* M. i. *Sabin. M. fs. Coq. in Aq. font.*  
*lib. 4. ad Consumpt. lib. i. Colatura sit pro*  
*Potu communi.*

I have not related this Case according to the several Days, because the Woman lived in the Country. However upon her making use of these Remedies, she was very much relieved, and recovered her strength so far, that after the space of forty five Days the *Menses* returned; which flowing orderly, the Symptoms abated. The *Electuary* and *Infusion* being again repeated, the Flux was renewed within thirty five Days, by which indeed she was much relieved. Returning again to the same Course of Physick, the next Period returned at the same space of time. And then, that she might be perfectly recovered, she was sent to drink the *Astrop Waters*: upon the use of which the *Menses* returning at the usual Periods, she was entirely freed from every complaint.

### Case V.

Feb. 28. 1702.

A Woman about Forty, and somewhat too Corpulent, being troubled with a Cough, about nine Months ago, was blooded: upon  
 bleeding,

bleeding, the *Menses*, which always flowed but very sparingly, were wholly suppressed for the *two* following *Periods*. But returning afterwards at stated times, the quantity was very very much lessened. Thus the menstruous Evacuation being much smaller than usual, she was disordered, especially for the *three* last Months. When she applied to me for help, the Symptoms were as follow. A very acute Pain all over the Body attended with a Swelling: when the Pain abated, the Skin was so tender, that she could not bear to be touched. But she complained mostly of the *Abdomen*: for she felt Gripings in her Bowels as if she had the Colick, an Heaviness, Inflation, and Nausea in her Stomach; so that she oftentimes vomited Phlegm. There seemed to be a fixed Pain in the Hip. Her strength was become so weak, that she dreaded the least motion whatsoever. In the Hypochondres there often arose Tubercles, which vanished again at times. No alteration either in her Urine, or Complexion. A slow and weak Pulse. In the foregoing Week the menstruous Period returned; but after a few drops were discharged, the Flux was stopped.

In this Disease *two* things seemed chiefly to be *indicated*.

I. To relieve the Symptoms, with which the Woman was greatly afflicted.

II. That, the fury of the Symptoms being in some manner abated, the menstruous Flux might be duly restored.

That



That I might therefore answer the first Intention, because the *epigastrick Region* seemed to be chiefly affected I ordered a *Plaster*, which might resolve the Humours, and assuage the violence of the Pain.

R. *Emplastr. Hyster. de Galban.*  $\overline{a} \overline{a}$  q. s. *Opii*,  
*Camphoræ*  $\overline{a} \overline{a}$  3 ii. M. F. *Emplastr. largum*  
*abdomini applicand.*

I added *Opium* and *Camphire*, that the effect of the *Plaster* might thoroughly penetrate into the abdominal Vessels; for they consisting of fine and subtile Parts, are endued with a very penetrating Faculty. That happy and elegant *Practitioner Bates*, when he would discuss any Humours <sup>a</sup>, always added these to his *Plasters*: Which Method indeed, as I first learn'd it from him, so have I oftentimes experienced its wonderful efficacy.

This *Plaster* therefore being applied over Night, after some Hours the Woman grew very Hot, and fancied that she felt the Humours struggle, as it were, among themselves: But on the next Morning, the Pain in the Belly was quite gone off, and the Tubercles dissipated. Which thing is easy enough to be explained. For the Particles of the *Ingredients*, especially the *Camphire* and the *Opium*, by their fineness insinuate themselves into the Pores of the Vessels, and being there mixed with those viscid Humours, which occasioned those Pains and Tubercles, so incide and rouse them, that the Blood Globules adhere no longer to the Mouths of the

<sup>a</sup> *Vide Emplastr. Camphor. & Podagr.*

*Arteriola*, but being very minutely divided they may be carried into the *Veins*, or thrown forth by *perspiration*. So penetrating are *Opium* and *Campfire* found to be, that there is hardly any Remedy (*Cantharides* excepted) which, *outwardly* applied, pervades the *Skin* more readily, and makes its way into the Blood: So little appearance is there of that sluggish and *cold* Quality, which most Folks have usually ascribed to them.

*March. 1.* That some regard might be had to the Stomach and Intestines, she had *Sal. Epsom.* ʒi. ordered her in *Aq. Bathon.* lib. ii. which brought away by Stool that load which adhered to the first *Passages*. At Night her Sleep was longer and quieter than usual.

*March. 2.* She fancied herself something more lively; and complained less of the Pains in her Limbs.

Therefore when there seemed to be an opportunity of answering the *second Intention*, which we have mentioned, those things were prescribed which might so encrease the impulse of the Blood, that the usual discharge of Blood might be made thro' the *Uterus*.

℞ *Æthiop. Min.* ʒi. *Cap.* ʒii. in *Syr. Viol. bis* in die superb. *Coch.* 6. *Decoct.* seq.

℞ *Cortic. Peruv. Rad. Gentian,*  $\overline{a} \overline{a}$  ʒss. *Sem. Cardamom. Cubeb*  $\overline{a} \overline{a}$  ʒii. *Bac. Juniper.* ʒi. *Coq.* in *Aq. Font.* lib. iii. ad consumpt. lib. i. add. sub finem decoctionis *Vin. Alb.* lib. i. *Colaturæ* add. *Tinct. Castor. Mart. Mynsichtb.*  $\overline{a} \overline{a}$  ʒi.

*March*

*March 4.* She grew better, altho' now and then her *Pain* returned for a short time. Because she had not slept well for some Nights she took of this *Hypnotick* going to Bed.

*R. Tinct. Croc. Laud. Liq. Sydenh. aa ʒi.*

*Cepit. gt. 40. ex Ther. venet. quas & singulis noctibus repetiit.* With which she slept quietly, and was refreshed in the Morning.

*March 6.* The Pulse much stronger. Still the Nausea at her Stomach returned every now and then, as did also the Vomiting sometimes. In order therefore to discharge the Humours from the *first Passages*, the *Purging Waters* were repeated.

*March 7.* Her Strength every Day encreas'd, and her Pulse grew stronger. She was much warmed by taking the *Decoction*. No remains of her Pain; no Inflation of the Stomach, altho' the Nausea often returned at times. Hardly any Weariness ensued upon walking.

*Mar. 8.* The *Purging Waters* were repeated, not only that the *Primæ Viæ* might be freed from any *foulness*, but also that the Blood might be attenuated. But since the Nausea and Vomiting were not removed by them, on *Mar. 9.* I ordered an *Emetick*, from which I abstained before, because she was so very weak. Upon taking therefore *Sal. Vitrioli* ʒii. she discharged a great deal of thick viscid Matter from her Stomach; after which she hardly felt any uneasiness.

*March 11.* Therefore that I might farther answer both *Indications*, I prescribed the same

*Catbar-*

*Cathartick*, as in the *third Case*, which might both Purge the *primæ viæ*, and the Blood itself, which gave her *six* Stools, and cleansed the Stomach so much that it could retain whatever Aliment was taken down.

*March 13.* Her Strength was almost wholly restored. Her Pulse every Day stronger. She was sometimes seized suddenly with a Pain at her *Hips*, which yet quickly vanished.

*March 15.* The *Purge* was repeated, and after that the *Powder* and *Decoction*.

*April 2.* No complaint, except of a certain Weight about her Stomach.

*April 10.* The Menfes flowed in greater quantity than they had been wont to do for four or five Years: which being continued for *four Days*, all that heaviness at her Stomach was removed.

### Case VI.

*Octo. 20. 1702.*

A Married Woman five and twenty Yearsold, had a decrease of the Menfes for almost a Year, but a total Suppression for the three last Periods: whence ensued a Tumor in all the Veins, a very sharp Pain in the Back and Head, a Nausea, and decay of Appetite, a rising as it were of a Globe in the Throat, a very great weakness, and a violent Dyspnæa; of which Symptom indeed she made greater complaints than of the rest. Her Complexion not much altered; for she was a Woman of a sanguine Habit. Her Pulse full and weak. The neighbouring old



old Women unanimously agreed that she was *with Child*: but for my part I was induced to think otherwise from the following Reasons.

1. Because her *loathing of Meat* continually encreased every Day for three Months and more; which yet is usually more troublesome to breeding Women at the *beginning*, and decreases gradually in the *third* Month.

2. Because the continual Pain of the Head, and great difficulty in Breathing, grew worse, which Symptoms when they rage immoderately, seem to be owing rather to a menstruous Suppression, than *Pregnancy*.

3. Because she neither perceived any *motion* or *swelling* in her Belly; of which one or other at least is usually perceived after the *third* Month, if the Woman be with Child.

Therefore in the Cure of those Symptoms, which I supposed to arise from a *morbid* Suppression of the Menfes, the only thing that seemed to be done, was to restore a proper *Impulse* to the Blood.

But because *Bleeding* was indicated by the *fulness* of the *Pulse*,  $\frac{1}{2}$  xii. of Blood were taken away.

Feb. 21. *℞. Mercur. dulc. ʒi. Resin. Scammon. gr. vi. M.*

Which gave her *ten* Stools, and in some measure removed the Nausea at her Stomach.

Those Days on which she was not purged, she took the following Pills.

*℞. Chalyb. cum Sulph. pp. ʒii. Rad. Gentian. Aristoloch. Rotund. aa ʒiss. Castor. Pulv. Ari. comp. aa ʒi. Extract. Absinth. q. s. M. F. Pil.*

*F. Pil.* mediocr. Cap. 4. bis in Die, superb. haustum cerevisiæ tenuis, in cujus lib. iii. incoq. *Limatur. Chalyb.* 3i. *Rad. Rub. Tinctor. Curcum.*  $\overline{a} a$  3iii. *Bacc. Juniper.* 3ss. *Sabin. M. i.* In quolibet haustu cap. *Tinct. Croc. gt.* 15.

*Feb.* 28. Hardly any change in the Symptoms. However a much stronger Pulse. Therefore the Purge was repeated, whereby she was much relieved for two or three Days.

*March* 6. Since she had found hardly any relief, she was ordered to *purge a third Time.*

*March* 12. The *Pain of the Head* and *Dyspnœa* were somewhat abated.

*Apr.* 8. After a repetition of the *Infusion*, the *Menses* came down, tho' in too small a quantity: Upon their breaking forth, that suspicion, which she had hitherto secretly entertain'd of her *Pregnancy*, vanished.

The *Menses* being restored, her *Health* also returned; except that now and then she was troubled with a *Dyspnœa* upon any great Motion and Labour.

## CH A P. XII.

*Of those Symptoms which arise from an immoderate Flux of the Menses.*

**A**N other fault in the uterine Flux is, *too great a profusion of Blood*, which usually happens upon two accounts, either when the Blood  
L. . . . . breaks

breaks forth too copiously at the stated Times, or when the Periods too frequently recur. This Disorder indeed is not quite so familiar among the Women, as a *Suppression*; and is attended also with *fewer Symptoms*: Which however, as they are wanting in *Number*, rage so much more violently, that there is much greater Danger from an *immoderate Flux*, than a *Retension* of the Menfes. For it is easier to lessen the *Copia* of the Blood, than to recruit any *want* of it; as it is harder to fatten *meagre Persons*, than to bring down the corpulency of those that are Fat. For the *solid* Parts, if they are too much distended, very easily recover their tone, upon lessening the quantity of the Fluid: But if they should once too strongly coalesce, by reason of a decay in the Fluid, the obstructed Passages are very difficultly opened by any application of Moistners and Emollients whatever.

An immoderate Flux of the Menfes is usually attended with a *Weakness*, *Anxiety*, *Syncope*, a *Coldness of the extreme Parts*, *Paleness*, *Convulsions*, and a *Suffocation*; which Symptoms indeed exert themselves while the Disorder is yet *recent*: But when it becomes *inveterate*, there comes on also at last *Tumors*, a *Cachexie*, a *Dropsy*, *Fluor albus*, an *hectic Fever*, and an *Atrophy*. And this Distemper, as it is contrary to a menstruous Suppression, so those Symptoms which it occasions, are entirely owing to a contrary Cause, namely, a *scarcity* of Blood.

For the Blood being too plentifully thrown forth, much of that Liquid is also discharged  
with

with it, which ought to yield a supply of animal Spirits: Whereby the Storehouse being exhausted, the Spirits are more sparingly carried into the Nerves; which being therefore diminished, the Strength, which is derived from the copia of Spirits, decays. And these indeed decrease in a *triplicate ratio* of the diminished Blood: for since the united action of the *Liquidum Nervosum*, the *muscular Fibres*, and lastly of the *Blood* itself, is requisite towards muscular motion, it is very evident that the force of the Muscles, or the *strength* of an Animal is in a *compounded* proportion of these three: which, since they so depend upon the mass of Blood, that their quantity is always proportional to it, the *force* will be in a *triplicate Ratio* of the Blood; as *Cheyne* <sup>a</sup> has demonstrated. If therefore, in an immoderate Flux of the Menfes, a *medium* of Blood be thrown forth, the Woman will loose  $\frac{7}{8}$  of her Strength. From hence also appears the Reason of that different effect, which usually follows dissimilar Evacuations; for by *large* and sudden ones, because of the exhausted Blood, the Strength is greatly wasted; but it continues pretty firm, if the Evacuation be *slow* and *gradual*, as it happens in a *Diaphoresis*, *Diuresis*, &c.

A sufficient Copia of Spirits being thus wanting, the *Heart*, upon the account of its continual loss of Strength in propelling the Blood forwards, will the soonest fail of any part of the Body: for being destitute of Spirits, it throws forth a

<sup>a</sup> Of an Hætick.



much smaller quantity of Blood; which therefore continuing for some Time in its *Ventricles*, occasions a certain sense of Labour and *Anxiety*, about the *Præcordia*. But, if the Spirits being exhausted, the *Power* of the Heart should at length fail, so that it be unequal to the weight of the Blood, the Contraction will be suspended, and the motion of the Blood ceasing, a *Swooning* ensues: till the *Heart* having received such supplies of Spirits, that it overcoming the momentum of the Blood, it may be able to renew again the *Circulation*.

Farther, the motion of the Heart being unequal, the *momentum* of the Blood will be weaker: both, because the *Copia* is lessened by the flowing of the *Menses*, and also, because the Heart more faintly exerting its Power, the Velocity also is diminished. Therefore since the *momentum* of the Blood which is already thrown into the Arteries becomes very languid, it will not very easily overcome that resistance, which continually arises from the Coats of the Arteries, and the preceding Blood. At least when the Blood is arrived to the more minute Vessels, it is carried with so languid a motion, that there is so great a cohesion of the Particles, that they cannot expeditiously enough be passed through the Orifices of the *Capillaries*: Thus the Blood will be either wholly stopped at the extremities of the Vessels, or carried along very slowly; and its Impulse being broke and weakened after this manner, a *coldness* will arise in the *extreme Parts*, and a *paleness* in the *Face*. A *Coldness* also

also of the *extreme Parts* may arise not only from a *Lentor*, but also from a *defect* of the Blood; the *heat* of any part whatever, being as the cause which produces it: but that cause is nothing else than the warm Blood itself flowing to the Parts: and therefore if the extremities of the Body be very sparingly, or not at all, moistened from a defect of Blood, a *coldness* must necessarily be felt in them. In like manner will a *paleness* in the *Face* arise from a decreased quantity of Blood; for it is certain that *Girls*, the more they abound in Blood duly circulated, are so much the more inclinable to a *ruddy Complexion*.

As a Convulsion proceeds from *repletion* when the Menfes are suppressed, so when they flow immoderately, it may be deduced from *Inanition*, which is the other cause of a Convulsion assigned by *Hippocrates*. For if a less quantity of Liquid should be derived upon any one Muscle, than upon its opposite, the opposite Muscle will be contracted, as is plain from what we have already said of a *Convulsion*. Thus if the Muscles of the *Larynx* and *Œsophagus* are seized with a *Spasm*, the Woman will suffer a sort of *Suffocation*: which *Hippocrates*<sup>a</sup> tells us, is mostly found in those Women, who are troubled with an immoderate Flux of the Menfes. He also pronounces this *Convulsion*, which comes upon an immoderate Flux<sup>b</sup>, to be *dangerous*: because, when this Symptom has once invaded, it is a sign that more Blood has been discharged than

<sup>a</sup> *Morb. Mul.* 1. 16.

<sup>b</sup> *Apb.* 5. 56.

the strength of the Body can bear without Injury: so that the Tone of the solid Parts being greatly weakened, there remain hardly any hopes of Recovery.

These Symptoms indeed, which we have hitherto been discoursing of, are wont to follow, not only from an immoderate Flux of the Menfes, but from almost any *excessive* discharge of Blood <sup>a</sup>, whether it be made by Art or Nature.

But the quantity of the Blood being diminished by too great an Evacuation, its *Quality* will also be vitiated, and a *Cachexie* brought on. For then only is the Blood rightly temper'd, and in a sound State, when there is a due *secretion* of all the Humours, which ought to be secreted: but that cannot be duly performed, unless its *velocity* be confined within certain Bounds. For the *Orifices* of the Vessels being given, the Secretion is in a Ratio of the *Velocity*. Since therefore, in a profusion of the Menfes, upon the account of the scarcity of Spirits, the contraction of the Heart, and consequently the *velocity* of the circulating Fluid is greatly weakned and abated, there will be an undue *secretion* of the Particles; thus many Humours are retained within the Vessels, which ought to be thrown forth; and the Blood loses its natural *Crafsis*. This *Cachexie* of the Blood is much promoted by the *Chyle* not being rightly elaborated in the *first Passages*: for the Spirits being diminished, the *Ventricle* and *Intestines* want Strength to

<sup>a</sup> Vid. Willis. & Bellin. *passim*.

comminute the aliment sufficiently: which being imperfectly broken is the more difficultly converted into Blood.

Nor will a *Cachexie* only follow from the *Chyle* being ill comminuted, but also a *Lentor*: which however will arise from the diminished velocity of the Blood, although there should be no fault in the *Chyle*. For when the Blood is slowly moved, that attrition of the Particles is wanting, which may prevent a cohesion: thus, since the action of the Globules upon one another is less, they will be easier united, and more strongly condensed. The Blood therefore having contracted a *Lentor*, and the Fibres of the Canals being weakned and become almost flaccid by reason of the defect of Spirits, *Tumours* will arise altogether in the same manner, as has been explained in a *menstruous Suppression*; inasmuch as the cause is every where the same, it may also produce the same effect; sometimes also a *Dropsy* will ensue. Tho' a Dropsy, indeed, is a more frequent concomitant in a *suppression* of the *Menses*, and an *Hætick* when they are *redundant*.

The reason of an *Hætick*, has been lately explained by a Gentleman well versed in the *Theory of Physick*, and its Symptoms very rationally deduced from an immoderate *Dilatation* of the *secretory Canals*: therefore we will not re-examine this account of an *Hætick*, but shall take it for granted; designing only to shew, how a *Distension* of the *Canals* may follow from the *Menses* being immoderate. And that indeed is occasioned chiefly two ways. 1. As that *Fluid*,



which ought to be detained in the Body, becomes defective, from too great an Evacuation of the Menfes, so the *solid* Parts also gradually decay: for being defrauded of their Nourishment, they become much less than usual and more contracted, so that they have now less power to press and constringe the Canals, which they every way surround: this Obstacle, therefore, at the sides of the Canals, being removed, the circulating Blood beats against the Fibres with a stronger Impulse, which are therefore easily divided; whence the *largeness of the Vessels* is greatly encreased. 2. The *Tone* of the Fibres being *weakned* suffers the Vessels to be widened very much. For the Blood being exhausted by too liberal an Evacuation, the Spirits fail, which should briskly animate the contractile Fibres of the Canals, to exert their *tonick* Motion, and press against the circulating Blood, in their turns, with a due force: but the strength of the Fibres being diminished, and the Canals faintly resisting the impinging Blood, they yield to its momentum, and possess a *larger* space. An *Hætick* will likewise follow, if the largeness of the *Canals* being unchanged, the *Copia* of Blood be lessened in a certain proportion; for then the *Canals* will be too *spacious* with respect to the *Humours*: whence the same Symptoms arise, as if the Capacity of the *Vessels* was really enlarged, when there should be no change in the bulk of the *Blood*. For if, upon taking away half the quantity of the Blood, the Orifices of the Vessels should be the same as before, it is the same thing,

as

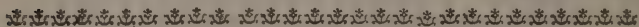
as if the usual quantity of Blood circulated in the Vessels, but that the Vessels were enlarged by an half. But since the Spirits, by which the *Tone* of the Fibres is preserved, decrease in the same proportion as the Blood, the *diminution* of the *Tone* will be in a *duplicate* Ratio of the diminished Fluid. Therefore, since both causes concur, namely, the *relaxation* of the *Canals*, and the *diminution of the Blood*, the *Heſtick Fever* will become more violent, to wit, in the same proportion.

After this manner will an *Heſtick* be occasioned, if the *Tone* of all the Canals, especially the *cutaneous*, should decay; but if the *secretory* Vessels in any particular *Viscus* should lose their *Tone*, altho' that enlarging of the Passages should not be able to produce an *Heſtick*, it will cause however a more liberal secretion of Liquid thro' them: which is, the *velocity* of the Blood being given, in a Ratio of the *Orifice*. Thus, if the *Tone* of the *Uterus* be weakned, the Mouths of the *Glands*, which are inserted into its inner Coat, will be so widened, as to discharge their Lymph very copiously into the *Uterus*: but that continually issuing forth will occasion that Distemper, which is called the *Fluor albus*: with which those Women are generally afflicted, who have been exhausted by an immoderate Flux of the Menſes.

An *Atrophy* at length succeeds, because both that Blood is wanting, which should yield Nourishment to the Body, and also the *Chyle*, by reason of the weakness of the Ventricle, is not  
duly

duly comminuted; and lastly, because the *momentum* of the Blood is so debilitated, that it cannot forcibly enough impel and drive the *nutritious* Juice into the Pores of the solid Parts: thus the impulse of the Blood being broken, the Passages, which used to receive the Nourishment, entirely close and coalesce. *Nutrition* being nothing else than the *apposition* of any Juice, or a perpetual succession of aliment into the Pores of the Fibres.

All Women do not equally labour under this profusion of the Menfes: for in Virgins, as they are much oftner restrained, so they the more rarely flow immoderately: in them, the Vessels indeed being more constringed, there is not so easy a Passage for the Blood, as in those who have *had Children*.



### CHAP. XIII.

#### *Of the Method of Cure in an immoderate Flux of the Menfes.*

THE Cure of this disorder is different, according to the several Causes of it; for an immoderate Flux may be produced *two ways*, namely, by the fault either of the *Vessels*, or the Blood. But the Vessels are in fault, when they are too flaccid and open, *b. e.* when there is so small cohesion of their Fibres, that they give way to the *momentum* of the Blood: and the Blood, when it is so *redundant*, or *thin*, or rapidly

rapidly circulated, as to be carried in too great a quantity into the Vessels.

But it must always be observed, that in making any *judgment* of an immoderate Flux, we must compare it with the former Periods, Accidents, preceeding Diet, and the state of the Blood: but the most certain sign of a profusion of the Menfes, is a decay in the Strength, so that the redundancy of the Flux is to be measured only by the Strength. But in those Women, who have *long* laboured under a *suppression*, either of the Menfes, or any other customary Evacuations, the Flux may continue long without Injury; therefore a *critical Eruption*, although it may be of long continuance, ought not suddenly to be stopt. In like manner, the Menstrua flow longer in Women of a *soft* and *watry habit*, in the *indolent* also and *great Eaters*, because that *Pletthora*, which regulates the Flux, is greater in all these. Therefore *Etmuller*<sup>a</sup> justly pronounces those Women to be more liable to too great a Flux, who have a watry Blood, or are of a *succulent habit*.

I. Then, *when the Vessels are flaccid*, we must chiefly endeavour to restore their *Tone*, let it be weakned by any means whatever: which is wont indeed easily to be restored, by the application of *external Remedies*, which strengthen and constringe the Fibres. These may easily be taken from the tribe of *Astringents*; the reason of which indeed, if you regard the manner of their operating, seems thus to be explained.

<sup>a</sup> *Tom. 1. 552.*



For since the effect of *Astringents* is such, as to occasion a certain *coagulum* in the Humours, as we shall prove hereafter, the *styptick* Particles being mingled and intimately united with the effluent Blood, form, as it were, a *Gluten*, by which the *apertures* of the Vessels are render'd close and compacted. Besides this power of *coagulating*, we may imagine also another vertue in *external* Remedies, which may shut up the gaping Vessels, namely, by the *Stimuli* of *Astringents*; which by sharply pricking and vellicating the Fibres, so irritate the Vessels, that they strongly contract themselves, and recover their *tonick* Motion. Thus the Juice of *Nettles* being applied to the *Nostrils*, by its *Stimulus* is found to stop an *Hæmorrhage*; *Spirit of Vitriol* also does the same by its *stimulating* and *coagulating* Qualities. *Internal* Remedies may also be made use of; which seem yet more properly to appertain to an immoderate Flux, when it is occasioned by the fault of the *Blood*.

But if the Tone of the Vessels should be excessively weakned, after the Flux is staid, Medicines are to be given inwardly, which may strengthen the Fibres; least possibly at the next Period, when the *momentum* of the plethorick *Blood* shall be encreased, the *Vessels* being still weak, should suffer more Blood to be discharged than is requisite. Therefore the Fibres are much strengthened by *Analepticks*, or those things which largely supply the Body with nutriment, and restore the Strength of the *solid* Parts.

II. When an immoderate Flux of the Menfes shall take its rise from a fault in the *Blood*, two sorts of Medicines are required in the *Cure*, to wit, either Revellents or Astringents.

I. But *Revellents*, since they draw a greater quantity of Humours to those Parts, where the *Revulsion* is made, cause the Blood to flow with a smaller impulse to the *Uterus*, from whence it is *derived*: so that the momentum of the Fluid being weakned, the Vessels which are now less distended, return to a state of *contraction*, and confine the Blood within their sides. Thus a Flux of the Menfes is restrained by making a *Revulsion* in the *Arm*, whether it be done by *opening a Vein*, or by *Frictions*, or by *Cupping-glasses*; which *Hippocrates*<sup>a</sup> also advises to be applied to the *Breasts*. Thus if a vomiting of Blood be excited by any *natural Revulsion*, the Woman is freed from a profusion of the Menfes<sup>b</sup>: because the Blood being both diminished, and carried plentifully upwards, the *uterine* Vessels are less pressed. This, however, does not seem to be such a Method of *Nature's*, as ought to be imitated by *Art*; for *Emeticks*, by violently shaking the Abdomen, rather promote than restrain the Menfes. The same must be said of *very strong Purges*, which agitate and rarifie the Blood: nevertheless *milder* ones may be made use of, that by loosening the Belly, some *Revulsion* of Humours, be it what it will, may be made from the *Uterus*: which therefore in *Practice* almost always *precede* Astringents. By these Revel-

<sup>a</sup> *Aph.* 5. 50. *Epid.* 2. 6.

<sup>b</sup> *Aph.* 5. 32.

*lents* is the menſtruous Flux oftentimes check'd, when it takes its riſe, either from the *redundancy*, or the too *rapid circulation* of the Blood.

*Etmüller*, rejecting theſe kinds of *Revulſion*, adviſes *Diaphoreticks*, which throw off the copious Serum, together with the acrid Salts by the Skin<sup>a</sup>: which Method of Practice does not ſeem however very agreeable to Reaſon. For altho' *Diaphoreticks* diminifh the quantity of the Blood, yet they ſo diſſolve and attenuate it, that a *Plethora*, with reſpect to the Veſſels, is greatly encreaſed: ſo that if *Diaphoreticks* are given juſt at the approach of the Flux, there is danger, leſt the Menſes ſhould break forth in too great a quantity.

2. *Aſtringents* are made uſe of towards the ſtopping of this Flux: which, by cauſing a *Coagulum* and *Lentor* in the Humours, ſo diminifh and break the impuſe of the Blood, that it cannot overcome the *Impediment* of the Veſſels, as ſhall be more fully ſhewn in what follows. That *Stimulus* alſo with which *Aſtringents* are endowed, may perhaps conduce ſomething towards ſtaying the Flux; eſpecially when they are *internally* applied: which, ſince it vellicates the Fibres of the Veſſels, ſeems to be able, in ſome meaſure, to bind and contract them: altho', it muſt be confeſſed, we ought not to lay any great ſtreſs upon this efficacy of *internal Aſtringents*, which is derived from their *Stimulus*.

*Glutinants* are to be rank'd with *Aſtringents*, among which, *Balaſamicks* obtain the chief place;

<sup>a</sup> Tom. 1. 553.

for these also, tho' in a lower degree, incrassate the Blood, and render its *Crafsis* more compact: therefore they not only lessen the momentum of the Blood, but draw also a certain *gluten* over the gaping Vessels. But because there is no great efficacy in Balsamicks, there does not seem to be any room for 'em in *Practice*, till *after* the use of *Astringents*.

But that we may more readily stop this Flux, we ought to apply not only those *internal Astringents*, but those *external* ones also, which have been already described in the other kind of Flux; inasfinuch as the Cure succeeds but slowly, if while we are endeavouring to govern the *Blood*, we should neglect the conglutination of the *Vessels*.

The Flux being restrained, and the Canals sufficiently settled, if the *Strength* should fail, which is usually the Case, we must betake ourselves to those Remedies which restore the Blood, and yield a supply of Spirits: and these indeed are not only to be sought for in the *Shop*, but also in the *Kitchen*. And here then those Remedies may take place, which are also useful in a *suppression* of the Menfes: which I am the more willing to take notice of, because this difference of the *Seasons* having not been regarded, many, perhaps, have been deceived by the *Materia Medica*; which, as it is settled by Authors, is almost the same in both disorders of the Menfes <sup>a</sup>.

<sup>a</sup> *Blasii Mat. Med.* p. 563.



## Case I.

Feb. 1. 1702.

A Certain Woman, after a Lying-in, was seized with an immoderate Flux of the Menfes, which continued for six Years: in the last two Years the Blood flowed almost daily, concreted sometimes into *Grumi* of the bigness of an Egg. She laboured under a very great weakness and drought, and was also sometimes feverish. A violent and continued Pain in the *Abdomen* and region of the *Uterus*. She was seized with an anxiety at her Heart, and sometimes also with a Syncope. The Pulse scarce perceptible.

The *Intention of Cure* seemed to be, after the stoppage of the Flux, to restore the *Strength*, which was extremely much decayed.

But in checking the Flux, since I thought it proper to abstain from *Revellents*, because their use seemed to be forbid, by the Strength being so excessively weak, I trusted wholly to *Astringents*: and them indeed, I ordered, as well *internally*, as *externally*.

Rx. Cortic. Granat.  $\mathfrak{z}$ ss. Rad. Tormentill. 3i. Fl. Ros. Rubr. Balauſtior.  $\overline{a}$   $\overline{a}$  M. i. Coq. in Aq. Ferrar. lib. iii. ad Consumpt. lib. i. Colatura fit pro fomentatione, bis in Die parti affectæ tepidè applicand.

For her common Drink she used the *Decoct. alb.* in lib. ii. whereof were boiled Cinnamon 3ii.

*Internally* was applied the *Tinct. Antiphthiſica*, so much commended by *Etmuller*<sup>a</sup>, drawn from

<sup>a</sup> Schräder. dilucidat. p. 253.

from *Sacchar. Saturni*, & *Vitriolum Martis* with *Sp. Vini*. Of this *Tincture* she took 20 Drops in *Aq. Plantag.* several times a Day.

When her Pain or Watching were troublesome, she took 20 Drops of *Land. liq.*

*Feb. 3.* The Flux was stayed; and least it might possibly return, the *Fomentation* was repeated daily to *Feb. 6.*

But the Flux being thus restrained, the *Pain* and *Weakness* seemed now to be regarded. I took, therefore, from the *Dietetick* Medicine, Broths and good nourishing Food, from the *Pharmacentick* the following mixture.

*R. Tinct. Croci, Laudan. Liq. Sydenb. aa 3 ii.*

*Camphor. in Sp. Vini 3ss. dissolut 3 i. M.*

*Cap. gt. 30. sexias in Die in Aq. Cinnam.*

*Fort. & Hord. aa p. æ.*

With which her Strength was very much repaired, and the Pain abated.

*Feb. 8.* A sort of membranous Pouch hung down from the *Labia Pudendi*: which yet adhered so firmly towards the *Uterus*, that it could not be extracted from the *Vagina*. It had also a very ill Smell. And indeed, at first sight, the Inner-Coat of the *Vagina* seemed to be fallen down: for I the less suspected it to be any remains of the *Placenta*, because the Woman denied that she had been brought to Bed for six Years. But when, upon considering the Stink and the Pain, I began to entertain some suspicion of a *Placenta*, I thought it proper to examine into the matter a little more narrowly; and therefore enquired of the Woman whether she had

not *miscarried* since that last lying-in: she confessed she had *been with Child* about *two Years* since, and that, being terribly frightened, as she returned home in the Night-time through the Streets, she had *miscarried* by the way; but that after she was returned home she sent for no Midwife, to examine whether any thing was left in the *Uterus* or not. From that Time also the *Pain* took its rise.

The Disease having been thus inquired into, the *Indication* seemed to be this, namely, to restore the force of the *Uterus* and *abdominal Muscles*, so that it might expel any remains of the *Placenta*. And, because the *mixture* which was ordered her, conduced very much to this end, she took 40 Drops of it several times in a Day. By which Medicine her Spirits were so recruited, that

*Feb. 10.* Some part of the *Placenta* was thrown forth, not only of a very strong Smell, but plainly putrid.

*Feb. 11.* Another portion was also thrown forth of the same ill scent. From that Time there were no marks of that membranaceous Substance within the *Vagina*: in like manner also was the whole Pain immediately allay'd.

*Feb. 13.* She so far recovered her Strength, as to be able now to sit up for some Hours, after having been confined to her Bed for almost a Month. She made no complaint of any thing but her Weakness and loss of Appetite. She took daily of her *Mixture*, from which she found very great relief.

*Feb. 17.*

*Feb. 17.* The Flux returned: which I was unwilling to check, because I found it very moderate, and attended with no ill Symptom; for it appeared to be the *natural* and ordinary Evacuation of the Menfes: which was therefore ended on the *fourth Day*.

*Feb. 23.* That I might farther provide for her Strength, the following things were prescribed.

R. *Tinct. Cortic. Peruv. (in Vin. Alb.) lib. i. ss.*

*Tinct. Croci, Spec. Diamb. a a 3ss. M. Cap.*

*Coch. 6. ter in Die.*

*Feb. 25.* Her Appetite was restored. Nothing was wanting to complete her Health but Strength; which however, upon twice repeating the *Decoction*, was also happily renewed.

## Case II.

*Sept. 10. 1701.*

A Woman of a full Habit, and who had been used to have too great a discharge of the Menfes, fell into an immoderate Flux, from excessive Exercise; so that the Menfes came down in a large quantity, at first indeed, for *six Days*, and afterwards for *twelve*. When she had laboured under this Indisposition the whole Summer, her Strength was very much cast down; she was often seized with a Syncope and Spasm; her Feet swelled. Her Countenance almost Hippocratick. The Blood being very thin, did not flow *guttatim*, but as it were in a continued Stream. When I first visited her, the Flux had continued four Days.



The *Indication* therefore of the Distemper required, that the Flux should be immediately stopped. That this might be effected, the same *Fomentation* was applied, as is described in the *first Case*.

At the Hour of Rest, she took the following *Hypnotick*.

℞. *Trochisc. Gordon.* ʒss. *Laudan. Lond.* gr. ii.  
*Mucilag. Gum. Arab.* q. s. *M. F. Pil. exiguæ.*  
 Cap. 3.

By the use of these she slept very quietly.

Sept. 11. The *Menses* still flowing, this *Electuary* was prescribed.

℞. *Conserv. Ros. Rubr.* ʒi. *Bol. Armen. Croc. Mart. Astring.*  $\overline{a}a$  ʒi. *Mastick. Terr. Japan.*  $\overline{a}a$  ʒii. *Spec. Diatriwn. Santal.* ʒiv. *Syr. è Symphyt.* q. s. *M. F. Elect.* Cap. q. n. m. 4tâ quâque hor. superb. *Coch.* 5. *Fulap. seq.*  
 ℞. *Aq. Sperm. Ranar. Plantagin. Cinnam. Hord.*  $\overline{a}a$  lib. fs. *Syr. è Corall.* q. s. *M. F. Fulap.* Cap. etiam ter in Die *Spir. Vitriol.* gt. 40. in quovis *vehiculo*.

*Repet. Fomen. & Pilul. præscript.*

Sept. 13. The Flux still continued, altho' only *guttatim*; which yet, upon her duly taking the Medicines, on Sept. 15. wholly ceased.

Now therefore the whole Method of Cure seemed to turn upon this Point, namely, to strengthen the Vessels, and prevent that rarefaction of the Blood. To answer the *first Intention*, the *Fomentation* was every Day repeated; the use of *Glutinants* and *Balsamicks* seemed sufficient for the *second. Astringents* being therefore set aside, the following Method was pursued.

℞. *Decoct.*

R. *Decoct. Alb.* ꝥ. 2. *Aq. Cinnam.* Hord. ʒi.  
*Sacch. Alb.* q. s. *M. Cap.* ʒiv. quater in Die.  
 R. *Balsam. Capiv. Polychrest.* a a ʒ ii. *Cap. gt.*  
 25. hora decubitûs in *Conserv. Ros. Rubr.*

Upon the taking of these Remedies, after the interval of almost three Weeks, Oct. 5. the Menfes returned; and continued indeed for *six* Days. But the last Prescriptions being repeated, the next Period, the Flux was terminated on the *fourth* Day, which stopping hitherto within the same space of Time, the Woman was thereupon perfectly recovered.

### Case III.

May 21. 1703.

A Woman, thirty six Years old, after a Miscarriage, had a Flux of the Menfes, during *fourteen* Days, for three Periods; afterwards, for almost three Months, they came down daily. By which Flux she was so weakned that she could by no means Walk, and but scarce Stand. She drew her Breath with so much difficulty, that she was in danger of being suffocated. She was seized sometimes with a Syncope, and sometimes with an hysterick Fit: so that she lay for an Hour, or two, as if she was Dead. The same pale Colour, and Leanness, as in Consumptive Persons. The Pulse weak, and often intermitting.

The Indication of *Cure* seemed to regard first, the *stoppage of the Flux*, and then the *restoring of the Strength*.

The *Fomentation* was therefore made use of, which is described in the first *Case*: which, indeed, I generally found to be greatly efficacious.

*Inwardly* she took twenty Drops of *Spir. Sal. dulc. in Decoct. Tormentill.* four times a Day.

May 25. The Flux something abated, altho' it broke out again every Day.

The following *Emulsion* was ordered in the room of her common Drink.

R. *Amygd. Dulc. excorticat.* 3i. *Sem.* 4. *Frig. Maj. a a* 3ii. quibus in mortario contusis affund. *Aq. Hord.* lib. ii. colaturæ add. *Sal. Prunell.* 3 ii. *Syr. Althæ. q. s. M.*

May 30. The Flux was staid; however it broke forth again on the next Day in the Evening.

But by the continual use of the Remedies prescribed, the Flux was so regulated, that from *June* the third to the ninth, it was wholly stopped; afterwards, at the Month's End, it returned at the usual Periods. The Flux being therefore restrained, and the Canals sufficiently closed up, the other *Indication* was pursued after this manner.

R. *Cortic. Peruv.* 3i. *Rad. Zedoar.* 3ss. *Cochinell.* 3 ii. Digerantur cum *Vin. Alb.* lib. ii. tepidè per triduum. Liquoris filtrati Cap. ter in Die 3 ii. In quolibet haustu instillantur *Tinct. Serpent. Vir.* gt. 20.

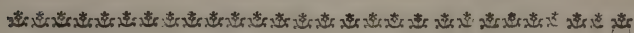
At Night, because she was often *sleepless*, and sometimes also *Hysterick*, she took the following *paregorick Pills*.

R. *Galban.*

R. Galban. col. 3i. Spec. Diamb. Castor.  
 Camphor.  $\overline{aa}$  ʒss. Laudan. Lond. ʒi. M. F.  
 Pil. 20. Cap. 2. ante decubitum, superb.  
 Tinct. præscript. Coch. 4.

Let her Diet consist of very *nourishing* Food.

July 19. Her Stomach, which had been hitherto disorder'd, was much strengthened. And her Strength also somewhat confirmed. At the beginning of *August*, the Woman, by following the Method prescribed, was perfectly recovered.



#### CH A P. XIV.

##### *Of the Vertue and Operation of the Remedies.*

THE Plethora having been illustrated by a variety of Arguments, and deduced thro' the whole series of *Phænomena*, let us now, as the conclusion of our Theory, consider the *Vir-tues* of those *Remedies*, which, given *inwardly*, usually Cure any disorder of the *Menses*: for these being rightly examined, it will easily appear, that *Emmenagogues*, or those things which remove a suppression of the *Menses*, encrease the *Plethora*, with regard to the Vessels; but that the same is *diminished* by *Astringents*, or by those things which check their flowing.

These Remedies are indeed cried up by most Persons, as being *specifically* adapted to the *Uterus*; since they only make such an alteration in the *Crisis* of the Humours, that the Flux, thro' the



*uterine Passages*, according to the various texture of the Blood, is either promoted or retarded: so that this *sensible Operation*, is nothing else, than the necessary effect of another Operation, which is performed in the Blood: which indeed is not so much owing to any peculiar efficacy of the *Remedies*, as to the *Fabrick* of the *Uterus* itself. This surely has not been considered by Writers, who, in their reasonings upon the virtues of Medicines, substitute the *sensible Operation* for the *internal Action*; thus, among them, some are called *Diureticks*, others *Diaphoreticks*, and others again *Emmenagogues*, when, from thence however, nothing can be known of their *manner of acting*: which, Operation of Medicines, is not only not *primary*, but fallacious also, and uncertain. For example, if a *Diaphoretick* be exhibited, every one knows that it will not have the desired Effect, unless the *Pores* are opened: for while they are shut up, whatever power the Medicine may exert in the *Blood*, it is wholly incapable of provoking a *Sweat*. Nevertheless, whether the *Sweat* succeed or not, the *Diaphoretick* acts in the same manner upon the *Blood*; for it attenuates and *resolves* the Blood to some certain degrees, that its thinner part may pass off by the cutaneous Pores, unless the Passage should be obstructed: that *Diaphoresis* however is not the *primary Action* of the Medicine, but necessarily flows from the Humours being thus attenuated, if it be not hindered by the *Pores*; for if the *Pores* should be shut up, the *Diaphoretick* so rarefies the

the *Blood*, as to occasion an *Heat*, and sometimes also a *Fever*. So that the proper Virtue of the Medicine does not consist in the *Diaphoresis*, but a *resolution* of the Humours. The same holds also with respect to *Emmenagogues*; for they, by a certain, constant, and immutable Rule of Acting, stir up the *Pletbora*, that the Blood breaks forth thro' the *uterine Vessels*. But there may be such an obstruction at the *Uterus*, thro' the fault either of the Canals or the Blood, as cannot be overcome by any *Emmenagogues*; when the Operation, however, of the *Emmenagogue*, upon the Mass of Blood, may be the same, as if it brought down the *Menses*. Thus the *sensible Operation* of the same Medicine may be various, as Dr. Cockburn rightly argues, but the power, which it exerts upon the Humours, perpetually constant and uniform.

Hence it comes to pass, that the Disquisition into the Vertues of Remedies is usually placed among the *desiderata* of *Physick*; when, if the simple and *primary Operation* was accurately observed, the Vertues of *Medicines* would not be so difficult to be explained. For by pursuing this Method of reasoning, all that complaint of a *doubtful Effect*, which is unjustly objected against the powers of Drugs, would fall to the ground. For the Physicians complain that there is no Remedy, which follows any certain Rule of Action, nay, which is not rather so uncertain and deceitful, as often to exert a *various*, and sometimes also *contrary Effect*, and that not only in different, but in the same Body. Thus the innocent

innocent Drugs suffer thro' the folly of the Physicians. For this *variety* of Operation, for which they upbraid Physick, ought not to be deduced from the changeable effect of the *Medicines*, but from the manifold state of the Body. Inasmuch as their Action is always the same, and agreeable to itself; but since the disposition of the Body, upon which they act, is very unlike, it is reasonable to expect upon giving any Medicines, that they should have not only a *different*, but sometimes also a *contrary* Effect. Thus, for example, let a Medicine be given, which may *resolve* any viscid Humours: it acts indeed by its *attenuating* Quality, altho' differently, according to the various kind of the *Lentor*; so that in one Case, where there is a less cohesion, the *resolution* will be greater; in another, where there is a greater, a less; lastly, in another case, where it is very firmly compacted, none at all: thus various, indeed, is the effect of a Medicament towards a *Cure*, altho' its Rule of Acting does not vary. How then can the same force overcome such widely differing momenta? How can the energy of an *Agent* be always similar, when the nature of the Body, upon which it acts, is so entirely dissimilar? It is so absurd to expect this constant effect from Medicines, that it is no wonder, if a *contrary* effect may be obtained even from the same Medicament. For let us conceive the *Crasis* of the Blood to be such, that by far the greatest part of it should be remarkably fizy, and its cohesion so very strong, that it cannot be resolved by the force of *Atte-*

*nuants*:

*nuants*: in this case, if a *resolvent* Medicine be given, it so fuses and attenuates that part of the Blood indeed, which is less sily, that it may be plentifully thrown forth by the *secretory Glands*; thus, the thinner Particles of the Blood being discharged by the force of the Medicine, the rest will become thicker and more compact. After this manner, as we are also taught by Experience, *Diaphoreticks* sometimes encrease a *Lentor*. Therefore *Willis* supposes that *Opium*, which he allows to be very effectual in *unlocking* the *compages* of the Blood, and *promoting Sweats*, can by no other means *incrassate* the Blood, than by *causing its serosities to be copiously secreted and discharged*; whereby the residue becomes thicker and more compact<sup>a</sup>. By no means indeed is this to be imputed to the *Medicament*; (for that constantly and faithfully observes that Law of acting, which Nature prescribed it) but rather to the Humours, which occasion a necessity for this various effect. Thus Fire *softens* some Bodies, and others it *hardens*; when at the same Time there is no variety of action in Fire itself. Thus a *Fever*, if the Blood be thin, raises the Pulse; if thick, it *depresses* it. In like manner *Steel*, if the Vessels that are stuffed up with the sily Blood suffer themselves to be farther distended, it is capable of *removing the Obstruction*, but *encreases* it, if they make any resistance. Which I have often experienced in *hysterick Affections*. In like manner *Emeticks*, if the Ventricle be *strong*, move the Belly: on the other hand, if

<sup>a</sup> *Pharm. Rat.* p. 1. 301.



it be *weak*, *Catharticks* occasion a *vomiting*. So, lastly, *Syrup of Violets*, mixed with *Acids*, exhibits a *red* Colour; with *Alcalies*, a *green* one: which diversity of Colour is not, however, to be ascribed to the various effect of the *Violets*, but the dissimilar property of the Bodies, with which it is mingled. For the change sometimes of a single, and that a very slight Circumstance, may occasion Medicines to appear endowed, not only with different, but also contrary Vertues: as in concave *Specula*, the sole changing of the *Distance*, exhibits a *manifold* appearance of the Object.

But that this whole affair may be very clearly exemplified, let us examine the Operation of *Opium* upon the Blood: by which Medicine more especially are excited *Phænomena*, not only differing vastly among themselves, but also repugnant. Let us suppose then what will be demonstrated hereafter, namely, that the primary Action of *Opium* consists in *attenuating* the Blood. But the Blood being *attenuated*, it necessarily follows, that a larger quantity of Spirits ought to be secreted; hence a *cheerful, lively, calm, watchful Temper of Mind*, and the *Strength of the Body restored*; which is chiefly experienced by those, who take *Opium* in the Day-time, in very small *Doses*: Thus, the Mind being refreshed, a *forgetfulness of Pain* sensibly creeps on; and sometimes also, by encreasing the Strength, *Opiates* are enabled to expel the *Fœtus*, and the *Stone*.

But, since *Opium* thus attenuates the Particles of the Blood, it causes whatever, adheres in the *Arteriola*, to be carried into the Veins: whereby all *obstruction* being removed, that *Pain*, which is frequently occasioned by the stagnating Humours, ceases. After the same manner is an *intermittent Fever* solved, which we have above deduced from a *Lentor*. The Passages being therefore opened, that the Blood and Spirits may flow in their usual Courses, that *Convulsion*, which arises from the obstructed Nerves, is allayed. Thus a *convulsive Colick and Hiccough* are frequently cured by *Opium*; to which also may be added a *vomiting and over-purging*.

The Spirits being recruited with *Opium*, the Heart very strongly contracts itself, whence a brisker circulation of the Blood: and the Blood being *attenuated*, and carried swifter than usual to the *cutaneous Glands*, there succeeds a *liberal Perspiration and Sweat*; because, there is both a freer discharge thro' the Pores, upon account of the *rarer texture* of the Blood, and also a more plentiful one by reason the Velocity is increased. Such a *Perspiration*, being largely promoted, *stops any Fluxes of the Blood and Belly*; because the Humours being evacuated thro' the Pores, there is a revulsion made from the Part which is affected: the same also carries off a *Cough and Catarrhs*. But the Humours being thus resolved, and protruded towards the exterior Parts, occasion an *Efflorescence on the Skin*, and sometimes also an *Itching*.

But

But since, by the Bloods being attenuated, there is not only a greater quantity of Spirits, and consequently a stronger impulse of the Heart, but the *Plenitude* is also encreased with regard to the *Vessels*, upon both which accounts *Opium* will raise the *Pulse*, and also provoke the *Menses* and the *Lochia*.

In this manner do *Opiates*, taken in a moderate Dose, generally affect the Body, when that *Plenitude*, which is induced upon the *Vessels*, is still contained within its due bounds: which yet, if, by taking *Opium* too liberally, it should be farther encreased, it exhibits entirely other, and those vastly different *Phænomena*. For the Blood being so attenuated, that the Arteries of the Brain are distended wider than they should be, those *Nerves*, which are every where interwoven with them, cannot but be very strongly compressed: but by that compression the Spirits must necessarily be either entirely intercepted, or, at least, secreted in a smaller Quantity: so that a *Dyspnœa* must come on, the vigour of the Mind be overwhelmed, and in proportion to that weight, with which the Arteries press the *Nerves*, there must succeed either a *Stupor*, or a *Sleepiness*, or even *Sleep* itself; after the same manner as usually follows from a too liberal drinking of *Wine*. But the Spirits being intercepted, the *Strength is diminished*; and this failing, the *Pulse becomes languid*, and sometimes the *lower Jaw falls*: the Tone also of the Parts becomes so unsteady, that the Fibres are greatly relaxed; thence arises a *dilatation of the Pupil*,  
an

an *Ischury*, and a sort of *Paralysis of the Members*. By the same rule may the other effects of *Opiates* be easily illustrated, which, however they may disagree with one another, are yet wholly owing to one Cause, namely, that *attenuation* of the Blood, which is occasioned by the *Opium*: which, since it enlarges the Capacity of the *carotid Arteries*, will differ in its Operation exactly according to the change of the *Diameter*. And indeed these disorders ensue, not only when *Opium* is taken in too large a Quantity, but also at an improper Time, and no regard being had to the condition of the Body to which it is given: for an *over large Dose* is not to determined so much by the *officinal Measure*, as the consideration of the Body. For in one state of the Humour a large *Dose* is required, in another a moderate one will suffice, and in another even the least will prove injurious. But if any thing like this should happen, it must be imputed to the *Physician* rather than the *Remedy*.

I have been somewhat longer in explaining these things, that it might be evident, how unjustly Medicines may be accused, as if their manner of acting was various and desultory. So that whatever uncertainty there may be, it is not so much to be ascribed to the *Instruments* of Medicine, as to the *Subject*; not so much to the *inconstant Vertues of Drugs*, as to the *unknown Crasis of the Humours*. Therefore, since Physick is nothing else, than a comparing of the Disease and the Medicine, unless we very well understand



derstand the nature of that, we shall be disappointed in our search after the Vertue of this. For upon this point chiefly ought the Physician's Labour to turn, to find out the different Temper, and the several Dispositions of the Humours; for so shall he more happily distinguish what will quicken, or what restrain them; whose *momenta* being so various, that they are not only, for the most part, less accurately observed, upon the account of their *Number*, but also less distinguished, upon the account of their *similitude*; he surely, who is more clearly acquainted with the condition of them, will make use of the most proper Medicine. In which thing indeed the *rational* Physician is chiefly to be distinguished from the *Empirick*, who not only searches into the Strength of the *Remedy*, but of the *Disorder* also, to which it is applied.

But, to return to our former Point, we must now enquire, what is the *primary Operation* of those *Medicines*, which are serviceable in a disorder of the *Menses*. We shall therefore begin with *Emmenagogues*, and proceed to *Astringents* by and by.

*Emmenagogues* are generally speaking also *Alteratives*, contrary to the Opinion of *Etmuller*<sup>a</sup>; for they occasion a change in the *Crasis* of the Blood. But their Operation is chiefly deduced from a certain *attenuating* Quality. For since the parts of *Emmenagogues* are very subtil and penetrating, they also incline and comminute the Mass of Blood, that there will be a less contact

<sup>a</sup> *Tom. I. 547:*

among its Globules, and consequently a greater Expansion: but the Blood being thus *attenuated*, it not only takes up more room within the Canals, but supplies the Nerves more liberally with Spirits; whence, the Heart being again more forcibly contracted, it is carried with a stronger impulse thro' the Arteries. Thus, since, upon the application of *Emmenagogues*, the *plenitude* is not only encreased with regard to the *Vessels*, but the power also of the Heart is augmented, the Blood striking and distending the *uterine Canals* more strongly than any of the rest, as we have already shewn, it opens itself a Passage thro' them. But since the most frequent cause of a suppression of the Menfes arises from a *Lentor*, which obstructs the *Capillaries*, the Humours are so *attenuated* by *Emmenagogues*, that such part of the Blood, which adhered to the sides of the Vessels, may now, readily enough, be carried thro' the smallest Orifices; thus, the Passages being cleared, the Blood exerts its force against the sides of the Canals after its usual manner, which could by no means reach to the Capillaries, while they were obstructed. Thus the Spirits are restored by *Emmenagogues*, and the force of the Heart is encreased; inasmuch as by the application of them the Blood is *attenuated*. But I desire it may be observed, that the increase of the Spirits is not deduced from this *attenuating* Quality alone. For this being allowed, it follows, that whatever *attenuates* very powerfully, must also be greatly *Cardiack*; which is contrary to Experience. For

N                      example,

example, the *Peruvian Bark* is much more *attenuating* than *Steel*; yet it is far more incapable of raising the *Pulse*. Therefore, in Medicines that are *Cardiack*, and which therefore promote the *Menfes*, the manner of operating is *double*: for some, by *attenuating* the Blood, repair the *Spirits*; others again, tho' they do not attenuate the *Humours*, promote the secretion of the *Spirits*. Of those we have above discoursed. We must now say something with regard to these, in some Remedies there are certain things more easily changeable into *Spirits*, and as it were related and of kin to them, as there are also Juices in certain *aliments*, better adapted to yield Nourishment: so that, the cohesion of the Blood being lessened, *Spirits* may be drawn from the *Medicament* itself. The *Spirits* being in this manner recruited, the Heart is more strongly contracted, and the Blood more swiftly circulated; but the motion of the Blood being renewed, since the *Heat* is also encreased, which has been clearly proved in the 8th Chap. the Particles of *Air*, which are mixed with the Blood-globules, being *rarified* by the *Heat*, as it happens in a *Thermometer*, expand themselves every way, and distend the Coats of the Canals: thus there may be a *rarefence* of the Blood, when in the mean time its Compages may not be in the least *attenuated*. Which often happens in Fevers, tho' but little observed. This *rarefence* however, since it encreases the *Plethora* in regard to the *Vessels*, provokes the *Menfes* as powerfully as if the Blood was *attenuated*. When, therefore, a

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*Suppression* arises from the *stiffness* of the *Vessels*, we may successfully order those things which *rarefy* the *Humours*; but when the *Blood* is in fault, we must also make use of those things which *attenuate*. But that *Emmenagogues* are chiefly endued with these attenuating Qualities, is both inculcated by *Reason*, and confirmed also by *Experiments*. Our Heads then of Argument will be *four*: namely, 1. *The sensible Effects of the Medicines*. 2. *Their mixture with the Blood while it is yet warm*, and 3. *also with Syrup of Violets*: 4. and lastly, *by making injections with a Syringe into a living Animal*.

I. Then that *Emmenagogues* have this *attenuating* Quality is proved by their *sensible Effects*; of which it will be sufficient to enlarge upon the following.

1. The *Taste*; which, being for the most part *Acrid and Bitter* in *Emmenagogues*, shews their Parts to be subtile, and capable of exciting motion: therefore such a *Taste* is chiefly observed in those things, which abound with a *volatile Salt*: but such is the *Efficacy* of a *volatile Salt*, that it greatly *attenuates* the *Blood*, and restores the *Spirits*. Thus, by the *Taste*, are the *Vertues* discovered of *Opium*, *Gentian*, *Myrrh*, *Arum*, *Wormwood*, *Savine*, *Rue*, *Pennyroyal*, *Centaury*, &c. all *hot and odoriferous*: to which may be added the *Cortex* of *Peru*, which tho' as yet, it obtains no place among the *Emmenagogues*; ought however to be ranked with them, upon the account of its remarkable effect in attenuating the *Blood*.



2. *Smell*; which, if it be very brisk, is as genuine a mark of a *volatile Salt*, as the *Taste*. Most *Bitters* are endowed with such a *scent*, so also are all *Aromatics*, which are therefore universally ranked with the *Emmenagogues*, and are reckoned by *Heurnius* <sup>a</sup> to be serviceable to the *Uterus*. Among which, however, *Saffron* and *Cinnamon* deservedly claim the first place. Among those which yield a *strong Smell*, are to be ranked *urinous Things*, v. g. *sal Ammoniacus*, *sal Corn. Cerv.* &c. which therefore powerfully bring down the *Menfes*.

3. *The quickning of the Pulse*; which, since it is greatly encreased, fully shews the *Blood* to be so *attenuated and rarified*, that there is a more liberal secretion of *Spirits*; whereby the impulse of the *Heart*, which regulates the *Pulse*, becomes stronger. This indeed is more effected by *Steel*, *Hydrarg.* and all *hot and cardiack Things*, than by other *Emmenagogues*; which have been always very much in use towards promoting the *Menfes*.

4. *Heat*. For since *Heat* is nothing else than a very brisk motion of the *Parts*, by this attrition against one another it comes to pass, that the *Blood-globules* are greatly dilated and *rarified*. Thus as there is hardly an *Emmenagogue*, which does not raise *Heat*, so whatever also occasions an *Heat*, is useful in provoking the *Menfes*: as is clearly shewn by *Cardiacks* and *Stomachicks*.

5. *A Diaphoresis*; which, whatever *Drugs* are capable of promoting, they certainly so

<sup>a</sup> *Meth. ad Prax.* 306.

*resolve* the cohesion of the Blood, that it may very easily be discharged thro' the Pores. Therefore among *Emmenagogues*, *Diaphoreticks* are all in all; among which, as there is hardly any thing more powerful than *Opium*, it is very evident, that that also may not be absurdly made use of towards bringing down the *Menses*.

II. That there is this *attenuating* Quality which we have ascribed to *Emmenagogues*, is proved from the mixing them with the *Blood* while it is yet *warm*. Nor does this Argument, which is drawn from such *Experiments*, seem to be frivolous. For if *Emmenagogues*, mixed with the Blood, stagnating and running of itself into a *Lentor*, should prevent its *coagulation and concretion*; surely if there should be occasioned a *motion* and violent *agitation* of the Parts among one another, as it comes to pass in the Body, upon the use of *Emmenagogues*, the cohesion of the Blood will very easily *rarifie*; as is deduced not only by *Analogy*, but also *Mathematick* reasoning. For the manner of acting is in both cases the same, tho' the force be very different in *degree*; which, whoever denies, must also disprove the testimonies of the Senses.

The Blood therefore, fresh drawn out of an Artery of a *Dog*, and mixed with the following Bodies, exhibited these *Phænomena*, Feb. 12. 1702.

I. With *Sp. Salis Ammoniaci*. A very florid Colour, and fluid Texture: which happens also, if the *Salt* itself should be added in *substance*. Feb. 18. The Blood retained its fluidity, tho'

inclining something towards a blackish Colour. With *Sp. Sal. Armon. Succinati* it appeared the same, except that it sooner turned black.

2. With a *Decoction of Savine*. The redness more intense, and a greater thinness, than with *Sp. Sal. Armon.* Feb. 13. The same Phænomena. The same held also with *Decoct. Marrub.*

3. With *Laud. liq. Sydenhami*. The Blood of a brighter red, tho' not much thinner, than with *Decoct. Sabinae.* Feb. 13. The Colour somewhat darker. There was the same appearance also upon the mixture of *Sp. Corn. Cerv.* as also of the Juice of *Sage, Lavender, Imperatoria, Pulegium, and Wormwood.*

4. With the *Panacea opii liq. D. Jones.* It afforded the same as *Laud. liq. Syd.* except that on Feb. 13. the Colour lost something of its brightness.

5. With *Aq. Rutæ still.* A very great fluidity, and not in the least changed on Feb. 13. After the same manner was it also with *Aq. Absinthii.*

6. With *Sp. Vini rectif.* The Blood was very much coagulated, and fizy like *Bird-Lime.* Feb. 13. It resembled *Conserv. Cynosbat.* as well in Colour as Thickness. The same was exhibited by *Sp. Vini Camph.* only the *coagulum* was weaker. The same was also done by *Tinct. Opiz cum Spir. Vini Camphor. extract.*

7. With *Tinct. Corticis Peruv. Spir. Vini extract.* The Blood was very thick, and dark-colour'd. Feb. 13. a little brighter, tho' still very strongly concreted. The same *Cortex vino ad satu-*

*saturitatem infus.* rendered the Blood extreamly fluid, and of a most elegant Colour.

8. With *Tinct. Jalap.* The Colour lively and bright, the Texture condensed. *Feb. 13.* Both became more intense. The same was afforded by *Tinct. Scammon. & Spir. Lavend. Comp.*

9. With *Tinct. Succini.* The Colour brownish. The Mass gather'd into Clots. *Feb. 13.* A very strong Coagulum. In the same manner was the Blood changed with *Tinct. Tartari.*

10. With *Camomel.* A lively Red. The Fluidity also very much encreased. There swum a great deal of Serum on the top.

11. With *Æthiops Min.* A black Mass was precipitated to the bottom: the other part sufficiently thin.

12. With *Sal. Genistæ*, a lively Colour: the fluidity greater than in the Blood itself.

13. With *Sal. Absinth.* A very great redness and fluidity.

14. With *Sal. Tartari*, the Colour the same, yet the Texture somewhat more condensed, than with *Sal. Absinth.*

15. With *Tinct. Chalyb. Lower.* The Blood much attenuated, and more ruddy. There swum at the Top a sort of oily Froth.



With the *Serum* of the *Human Blood*, were the following things mixed.

1. *Tinct. Aloes cum Aq. Mentb. extract.*

*Decoct. Sabina.*

*Aq. Sabinae still.*

*Aq. Fontan.*

*Decoct. Gentian.*

*Ari.*

*Sarzæ.*

*China.*

*Spir. Sal. Armon. cum Cin. Clavell.*

*cum Calce viv.*

*Succinatus.*

*Spir. Tartari.*

*Ol. Semin. Carui.*

*Panacea liq. D. Jones.*

*Laudanum liq. Syd.*

*Spir. Croci.*

*Spir. Terebintb.*

*Tinct. Martis Tartari.*

*Spir. Guajaci.*

*Spir. Corn. Cerv.*

*Ol. Tereb. Guajac. Lav. Caryophyl.*

2. *Decoct. Cort. Peruv.* This rendered the *Serum* much more fluid than the former.

3. *Spir. Vini Campb.* It was strongly coagulated. Being put into a Phial, after it had stood some Time, there appeared a pretty large *sediment* at the bottom: the upper part of the *Liquor* clear and pellucid.

4. *Sp. Vini. rectific.* Being likewise shut up in a Phial, it remained turbid without any precipitation.

5. *Tinct.*

The Colour various in relation to the *Liquor*, yet the Texture of the *Serum* was something attenuated; which continued, without any change, for a Day or two

5. *Tinct. Scammon.**Castorei.**Succini simpl.**Sulphuris.**Corticis Peruv.*

The Serum  
was moderate-  
ly coagulated.  
The same was  
done with *Sp.*  
*Vini Tart. &*  
*Ratafia.*

6. *Tinct. Croci.**Metallorum.**Potestates Succini.**Sal. Volat. Oleos.*

A slight coa-  
gulum.

7. *Tinct. Martis Mynsicht.* A strong coagu-  
lum. A Mass concreted like a Gum sunk to  
the bottom.

8. *Tinct. Antimon. Diaphor.* Turbid and  
something concreted.

9. *Tinct. Jalap.**Succinicum sal. Armon. pp.*

Only very  
turbid.

10. *Tinct. Coccinea, ex spec. Diambrae &*  
*Cochinella cum Sp. Vini extract.* Hardly any  
coagulum.

The Reader will observe that all those things  
which were mixed with the *Blood* and *Serum*  
*attenuate* and dissolve their Texture, except  
those *Tinctures*, which are drawn with *Spirit*  
*of Wine*. But this *Concretion* which arises from  
this sort of *Tinctures* is not to be ascribed to the  
thing dissolved, but to the *Menstruum*. For  
*burning Spirits*, tho' you should dissolve almost  
any Medicine whatever in them, *coagulate* the  
Blood. Which may be proved both otherwise,  
and also from the thing itself. For the *simple Spirit*  
*of Wine* causes a much stronger Coagulum, than  
any *Tincture* extracted with the same *Spirit*;  
therefore also is the *Concretion* different accord-  
ing

ing to the various nature of the things dissolved in it; for instance a slight one, if any *attenuating* Medicine be added, such a *Sal Armoniacus*, *Opium*, *Crocus*, and any *Aromatick* whatever. Thus it is evident from experience, that the Blood is but weakly *concreted* by the mixture of the Powers of *Succinum*, *Sal Vol. Oleos. Sp. Vini Camphor. Tinct. Opii cum. Sp. Vini Camph. & Tinct. Croci*; but that it undergoes hardly any *Coagulation* with the *Tinct. Coccinea*, because of the effect of the *Aromatics*. In like manner was the *Serum* strongly *concreted* by *Tinct. Succini simplex*; with the same *Tincture* mixed with *Sal Armoniacus* it became only very turbid. The reason of which variety is this, that the *Concretion*, which is always brought on by *Spirit of Wine* is impeded, or at least diminished by the infusion of *attenuants*. For any one will easily find that these Medicines, whose *Tinctures* we have mentioned to be extracted with *Spir. Vini*, are endowed with an *attenuating* Quality, who will accomodate them to any other *Menstruum*. Thus *Opium*, whether it be dissolved in *Water* or in *Wine*, powerfully *attenuates* the Blood, as is sufficiently proved by *Laud. liq. Syd.* and the *Panacea* of Dr. Jones; yet when it is extracted with *Spirit of Wine* it less prevents a cohesion. In like manner the *Tincture* of *Cortex Peru* with *Spirit of Wine* very strongly *coagulates* the Blood; when at the same time the same *Cortex* boiled in *Water* *rarifies* the Blood as much as any other *attenuant* whatever. But tho' the Blood is not at all *attenuated*

*tenuated* by these *Tinctures* drawn with *Spirit of Wine*, yet are they very justly ranked among *Emmenagogues*; for to say nothing of those things whence the *Tincture* is drawn, the *Spirit of Wine* itself contains in it those *Particles*, which are easily convertible into *animal Spirits*; as is very plain from that sudden refreshment upon taking these *Spirits*. But the *Spirits* flowing very plentifully into the Heart, that *rare-scence* of the Blood is occasioned, which we have a little before shewn to be very capable of *bringing down the Menses*. So that these *Tinctures* drawn with *Spirit of Wine*, are serviceable in provoking the *Menses*, when the *Suppression* arises from the too great stiffness and resistance of the *Vessels*. But if the *Menses* are retained by the fault of the *Blood*, so that the cure consists only in *attenuating* the *Humours*, other *Menstrua* seem to be much better adapted to these *Emmenagogue Tinctures*; as for Instance, *Water* or *Wine*, than these *burning Spirits*.

III. That the cohesion of the Blood is removed and *attenuated* by *Emmenagogues*, is evinced by mixing them with *Syrup of Violets*. The reason whereof is hence deduced, because it is agreed that almost every thing which turns *Syrup of Violets* of a greenish Colour, ought to be ranked among the *Alkalies*<sup>a</sup>. But the powers of *Alkalies* is allowed on all hands to be such, as to *resolve* the *coagulum* of the Blood: Therefore whether *Emmenagogues* are *Alkalies*, or what is the same thing, *Attenuants*, will be known from Experiments.

<sup>a</sup> Boyle de Color. p. 3. 98.



*Syrup of Violets mixed,*

1. With *Ol. Succini* ----- a greenish Colour.
2. With *Steel dissolved in Vinegar*. The Colour green, but very obscure. The same was done with a *Solution of Chalybs cum Sulph. pp.* both in *Vinegar*, and also in *Spirit of Nitre*; the same also with *Tinct. Martis*, prepared with *sal Armoniacus*.
3. With *Chalybs in Spir. salis solut.* No change of the Colour, but what proceeded solely from the Mixture.
4. With *Chalybs in Spir. salis Armon. solut.* A very bright Green. The same was exhibited by *Tinct. Tartari & Metallorum*, and the Powers of *Amber*.
5. With *Chalybs in aq. font. solut.* A Colour somewhat inclining to a Green.
6. With *Spir. sal. armon. succinat.* A middle Colour between Green and Brown.
7. With *Spir. salis Armon. cum Calce vivâ pp.* Such a Greenness as is observed in a Lake or Marsh.
8. With *Spir. sal. Armon. cum sale Tartar. pp.* The Colour of a very deep Green, and pellucid. The same is done by *Sp. C. C. & Tinct. Loweri*.
9. With *Copper dissolved in Spir. sal. Armon.* Such a Greenness as is exhibited by a Glass Bottle.
10. With *Tinct. Succini cum sal. Armon. pp.* A somewhat fainter Green. The same was also exhibited by *Sp. Lavend. comp.*
11. With *Panacea opii liq.* The Colour inclining to a Green.

12. With

12. With *Tinct. Antimonii*. The Colour of the *Tincture* turned into a watry one. There was also the same appearance with *Tinct. Corticis Peru. Castorei, & Jalap.*

13. With *Elix. Prop. cum. sal. vol. pp.* The Colour approaching to a Green, but somewhat Clouded.

14. With *Spir. Vini*. Hardly any change of the Colour. The like also with *Sp. Succini & Cochlearia.*

15. With *Sp. Tartari*. The Colour Green, indeed, but the faintest of all.

16. With *Sal. Val. oleos.* A Grass Green. Salt of Tartar yielded the same; when *Spirit of Vitriol* was poured upon this, there arose an Ebullition, and a ruddy Colour.

17. With *Oyster-shells dissolved in aq. fortis.* The Colour compounded of Pale and Green.

Thus *Emmenagogues* change the *blew* Colour of the *Syrup* into a *Green*, some of which are so powerful, as to blunt all the force of the *Acids*, and sometimes also plainly to overcome it. Thus *Steel* dissolved in *Sp. of Salt* destroys the red Colour, which is made at other times by mixing *Spirit of Salt* with *Syr. of Violets*. The same *Steel* dissolved in *Spirit of Nitre*, not only extinguishes the *redness* which is bestowed upon the *Syrup* by *Spirit of Nitre*, but also recalls the *greenness*. In like manner *Oyster-shells* so blunt the points of *Aqua Fortis*, that, as we are taught by the Experiment, not a *purple* but a *green* Colour arises. By the same means may *Alkalies* be distinguished, if you  
pour

pour on a Solution of *Sublimat. corrosiv.* for by mixing with *Alkalies* according to *Tournefort's* <sup>a</sup> Experiments the Colour becomes somewhat *Yellow*.

IV. *The attenuating Quality of Emmenagogues* is manifested by making *Injections into a live Animal with a Syringe*: so that if any are so unbelieving, as not to be satisfied with the reason of our former Experiments, let them now *behold* and be convinced. I shall not indeed give a minute Description of these Experiments, but as concise a one as may suffice for our purpose.

1. Then, into the *jugular Vein* of a Dog were injected *Panacea opii liq.* 3 ii. fs. In four Minutes time the Animal died; but the Limbs no ways stiff for a long time after Death. Upon opening the *Vena Cava and Aorta Descendens* there flowed out very thin and flame-coloured Blood; the Lungs were also red and turgid with Blood. The Blood in the Heart extreamly fluid. The Ventracles of which were as free from any *Coagulum*, as if they had been washed with *hot Water*.

2. To another Dog were likewise given six Drams of *Laud. Lond.* dissolved in *Aq. Cinnamon.* He was in a short time seized with a Tremor and Spasm, afterwards there arose a violent Salivation. In a quarter of an hour the Dog expired. Upon opening the Carcase, there was found in the Stomach and Intestines a Chylose Matter, intimately mixed and tinged with the *Laudanum*. The Arteries, as also all the

<sup>a</sup> *Pref. Histoire des Plantes aux environs de Paris.*

Veins were remarkably distended; the Blood in the whole Body, incredibly thin and rare.

3. Into the jugular Vein of a Dog were injected with a Syringe *Sp. of Wine* 3 ii. After half a quarter of an hour, his Carcase being opened, the Blood in all the Veins and Arteries was strongly concreted into *Grumi*; which Concretion however of the Blood was more compact in the Ventracles of the Heart. *Bobnius* takes notice of this Power of *Coagulating* in *Spirit of Wine*; therefore he made use of it externally, in stopping an Hæmorrhage, with very good success<sup>a</sup>.

After the same manner were injected the *Tinctures* extracted with *Spirit of Wine*, of *Saffron*, for instance, *Castor. Spec. Diamb. Myrrh. &c.* by all which indeed the Blood was concreted, but differently according to the various genius of the *Tincture*. For there arose the same *Phænomena* from the Injection of these *Tinctures*, as we have before mentioned to arise from their mixture with the Blood.

4. There were gently emitted into the jugular Vein of Dog about 3 vi. of *Sp. sal. Armon. cum Calce viva pp.* After a quarter of an hour he was seized with spasmodick Tremors over his whole Body, and a *Subsultus Tendinum*. The *crural* Vein being first opened, and afterwards the *jugular*, the Blood flowed out extreamly Liquid, strongly scented of an urinous Spirit, and filled with bubbles of Air. During the Injection, the Heart was very frequently and

<sup>a</sup> *Act. Lips. Ann. 1683. p. 154.*

strongly



strongly contracted. Again, upon injecting 3 fs. of *Spir. Sal Armon.* within a few Minutes the Dog died. The Thorax being opened, the Lungs appeared very ruddy, and, as it were, inflamed : In all the Veins and Arteries, as also in the Heart, the Blood was exceedingly thin and rarified : Only in the Trunk of *Vena Cava descendens*, from the Liver even to the Heart, was the Blood found thick and compact ; such as when it has been cooled a while after having been let out of the Vessels. Which thickness, without doubt, proceeds from this, that while the Spirit was continually protruded from the *jugular* into the *right* Auricle of the Heart, the Blood in the *Vena Cava descendens* could not be carried into the Heart ; and being there so confined, and stagnating contracted that thickness. And this generally comes to pass if the Injection be made in the *jugular*.

5. Into the *jugular* Vein of a Dog was injected 3 i. fs. of a strong *Decoction* of the *Peruvian Bark*. After a quarter of an hour the Dog was seized with a violent and quick Pulsation of the Heart, and then with frequent Spasms. Upon injecting 3 fs. more, he died totally convulsed. The *crural* and *axillar* Vein being cut after Death, the Blood came out of a flame Colour and Liquid. On the next day the Thorax was opened ; the Lungs very ruddy and turgid ; the Blood was very much accumulated in the *right Ventricle* of the Heart, and of consequence compact ; yet there was but a small quantity in the *left*, and that pretty fluid. In like manner,

out

out of the *Vena Porta*, and *Jugular* it flowed liquid, and preternaturally rarified.

6. At 9 in the Morning a Dog had given him *Tinct. Chalybeat. Lower.* 3ii. hardly any change, except that he staggered as if he had been drunk. At 12 a Clock he took *Chalybs. cum Sulph. pp.* 3i. in a morsel of Butter, which was again repeated at 3 in the Afternoon. At 6 the foresaid *Tincture* was injected into the *Jugular* to 3ii. In a short time there was a strong expiration, a most violent labour and pulsation of the Heart; which continued for almost an Hour. The Abdomen being opened after Death, the peristaltick Motion remained a long time. The *Chalybeate* Mass was found in the Stomach and all the Intestines; whose internal Coat was tinged with a ferruginous Colour. All the Blood-Vessels, as also the Lacteals greatly distended. The Iliack Vein being opened, there came forth liquid Blood as from a live Animal: The same sprung with an *impetus* from the Heart being wounded, intensely rare and ruddy. At Twelve of the Clock there was still much florid Blood swimming in the Heart and contiguous Canals, though less liquid than in the former Experiment.

7. A Dog devoured *Sublimat. corrosiv.* 3i. within a quarter of an hour he was seized with an enormous Vomiting and Spasm; and about an hour after the Dog died with a Purging. The Abdomen being opened, all the *Viscera* were very ruddy, and in many places inflamed; a great deal of Blood extravasated about the

Pancreas; so that the Glands might be seen distinct, and as it were disjoined. The Canals were so distended, that even those small Vessels, which creep through the Coats of the Arteries and the Veins, were exhibited to the Eye. The Kidneys as well as the Spleen were replete with liquid Blood. The Thorax being opened, the Lungs appeared turgid and ruddy; very much Blood flowed about in the Heart, fluid and not the least coagulated. In like manner there came forth the most liquid Blood out of all the Arteries and Veins.

By this Experiment is that force, which *Mercury* exerts in attenuating the Blood, easily known. For the other Bodies which constitute *Sublimate Corrosive*, namely, *common Salt*, *Vitriol*, and *Nitre*, strongly coagulate the Blood: but the *Mercury* mixed with them not only destroy, all the Coagulum of the Blood, but also greatly rarifies it; it would certainly more strongly resolve the Humours, if it was exhibited by itself without these acid Salts. Therefore *Calomel*, into which enters a greater proportion of *Mercury*, still attenuates the Blood more intensly. The same is observed of *Mercury* by that accurate and diligent Enquirer into *experimental Anatomy*, *Wepfer*; as also of *white Hellebore*, *Hyoscyamus*, *bitter Almonds*, &c.

After this manner were the Experiments made of the *primary Emmenagogues*: to add more would be both unnecessary to the Subject, as well as too troublesome to the Reader.

Thus

Thus the crasis of the Blood being either *rarified* or *attenuated*, *Emmenagogues* encrease its *momentum*. There are some also, which by their own *proper momentum* provoke the *Menses*. Of which the chief are *Quick-silver* and *Steel*. For since the *gravity* of *Quick-silver* is such, that it exceeds the *Blood-globules* more than *ten times* in *Weight*, the *momentum* of the *Quick-silver* will be stronger than that of the *Blood* in the same *Ratio*: wherefore the *Blood* having acquired a stronger impulse by the taking of *Quick-silver*, it will both easier protude the viscid *Humours* through the *obstructed Capillaries*, and also more strongly impinge against the *uterine Vessels*: in effecting which is imploied the whole *Virtue* of *Emmenagogues*. Nor does *Quick-silver* excel in this *Impetus* only, but both by the *weight and subtlety* of its *Parts* it breaks and disjoins the cohesion of the *Blood* so, that the *Humours* being vastly *attenuated* there is made a greater *Secretion* of the *Spirits*, and the power of the *Heart* becomes the stronger; whence also, upon giving *Mercurials*, the *momentum* of the *Blood* encreases in a *Ratio* of the *Velocity*. This is sufficiently confirmed by *Salivation*; in which the *Pulse* is observed to be so *quick and strong* as nearly to resemble that in a *Fever*. It is also proved by *Experience* that the *Blood*, when the *Salivation* is over, remains greatly *attenuated and rarified*. Therefore a *Suppression* of the *Menses* is never more happily remedied, than when *mercurial* *Purges* are at times interposed with *Alterants*. I have likewise found the



continual use of *Æthiops Mineral* to be not only safe, but also always effectual; which is generally postponed to the other preparations of *Mercury* upon this account only, because it is the most easily prepared of them all. Thus the operation of *Quick-silver* holds perpetually the same; which however constant it may be, hinders not yet in the least, but that *Quick-silver* may be endowed also with other Powers: for it not only opens the *obstructed Vessels*, but also as constantly blunts the *Points* of the *Acids*.

*Steel* also by the force of its *momentum* powerfully opens the *Vessels*; inasmuch as it is a very ponderous Body, although it is only furnished with *half* the *gravity* of *Quick-silver*. It likewise *attenuates* the *Humours*, as is plain from Experiments and its Effects, wherefore it is useful also upon another account in bringing down the *Menses*. Besides *Steel* is one of those things, which we said were in a manner related to the *Spirits*, and easily converted into them; which is evident from the *Pulse quickening* very much with the use of *Chalybeatus*. Thus in *three* ways is *Steel* conduive towards provoking the *Menses*; from which principles of acting may we deduce all those *Phænomena*, which are usually excited by *Steel*. For example, hence it is easily known, how, as is commonly said, it opens the *obstructed Vessels*, and *astringes* those which are too much relaxed: which powers indeed of acting seem to most Persons not only *contrary*, but also *inexplicable*. But I believe it is plain to every one that *Steel* opens the obstructed

sted Vessels both by the *momentum* of its *gravity*, and by its attenuating Quality; for by this it removes the cohesion of the viscid Blood, whence the *obstruction* arises; by that it propels the Humours thro' the *Cavillaries* with a certain impulse. The Vessels being therefore freed from any obstruction, their sides must necessarily be *astringed*, or contracted. For the Fibres, which, while the Blood stagnates, were relaxed, now every Obstacle being removed exert their natural Force, *b.e.* by a strong *elasticity* restore themselves to their proper *tone*, and recover a *contractile* State; whence they are also said to be *astringed*. And *Steel* indeed strengthens the *Tone*, not only because it clears the Vessels of any Obstruction, but because also it affords a liberal supply of Spirits, as has been said; upon which depends all the *contraction* of the Fibres.

*Emmenagogues* having been considered, *Astringents* come next to be examined. Whose Vertue, since it consists not only in *vellicating* and contracting the Fibres, but also in *coagulating* and thickning the Humours, is conceived to restrain the immoderate *Menses* after this manner. For the Particles of the Blood being condensed, and cohering strongly together, the *Velocity* is diminished; not only because there is made a much smaller secretion of Spirits, but because there is such a resistance of the Humours, that the Heart cannot protrude them without great difficulty. But the *Velocity* growing languid, the *momentum* of the Blood is so deficient,

that it now less distracts the Canals, and becomes unequal to their contrary forces. Thus the force of the Blood being debilitated, the Vessels recollect their *tone* and coalesce. Which yet, if they do not rightly recover, and remain still somewhat open, the Flux does not therefore however continue. For the Blood-Globules, since they are more compacted, and much encreased in Bulk, at length so adhere to the interstices of the Vessels, that they fill and close up every aperture, as it were, with a Wedge. We shall prove that *Astringents* are endued with these Qualities, by the same Method of reasoning, as we made use of in explaining of *Emmenagogues*. We shall therefore produce four sorts of Arguments, namely, 1. *The sensible Effects of the Medicines.* 2. *The mixture of them with the Blood, while it is yet warm;* and 3. *with Syrup of Violets.* 4. *By injecting them into a live Animal with a Syringe.*

I. The Operation of *Astringents* appears chiefly from its *twofold sensible Effect*; the one of them shews its *vellicating* Quality, and the other that of *coagulating*.

I. *A subacid, acerb, austere, and styptick Taste*; of which, one at least, is found in all *Astringents*. Thus are *Plantain, Anagallis, Bay-Salt, Spiritus Nitri,* and *Salis dulcis*, endued with a subacid Taste; *sower Herbs, Vinegar, sal Tartari fixus, Tartarus Vitriolatus, Spirit of Sulphur, Nitre, Salt,* and *Vitriol*, with an acerb one: *Alum, Vitriol, cortex Granatorum, Tormentilla, Bistort, Palaustines, Bolus Armena, &c.* a styptick and  
austere

austere one. But if these Medicines greatly prick and vellicate the *Tongue*, why should not they also, when carried into the Canals, *stimulate* the Fibres, and reduce them to a state of *Contraction*? Which power, indeed, of *contracting*, when *Astringents* are *externally* applied, is easily discovered by the Eye.

2. *A depressed Pulse*; as follows, on the great use of *Astringents*. But the *diminution* of the *Pulse* shows that the Blood, which before took up a pretty deal of space within the Arteries, is now crowded into a narrower room, or a *concretion* being brought on, it much more closely coheres; whence, not only a much smaller secretion of Spirits, and therefore a weaker impulse of the Heart, but a less distension of the Canals. Thus oftentimes in a *hot Scurvey*, upon the use of *Astringents*, the *Pulse* is observed to be much *depressed*. In like manner do *Astringents* incrassate, and as it were, compact the Blood, when it is too much rarified after a *Salivation*, and therefore also depress the *Pulse*.

II. That the Humours are *coagulated* and concreted by *Astringents*, may be proved by mixing them with *Blood* and *Serum*. Feb. 12. The following things therefore were mixed with the *arterious Blood of a Dog*:

1. *Spir. Nitri dulcis*. The Blood immediately contracted a blackness, and run into a very thick Mass. Feb. 13. The blackness and thickness encreased.



2. *Spir. salis dulcis.* The Colour very brown. The Blood more compact, but not concreting altogether so much as with the *former*.

3. *Spir. Nitri Bezoart.* The Blood was suddenly and strongly coagulated. The Mass con-  
creted like putrid Blood. *Feb. 13.* A very small part still thin, but brownish.

4. *Ol. Vitrioli.* It was immediately concre-  
ted with a *Fermentation*. The Colour inclin-  
ing towards a blackness. *Feb. 13.* The Coagu-  
lum less strong than in the others. For the Se-  
rum was separated,

5. *Spir. Nitri.* It fermented and the Blood  
was coagulated. It put on a brownish Colour.  
*Feb. 13.* Much Serum swam on the top, slight-  
ly concentered.

6. *Aq. Fortis.* The Fermentation and Coa-  
gulation pretty strong. The Colour approach-  
ing to a brown. *Feb. 13.* The Mass black,  
thick, and concentered into *Grumi*. The serous  
part grew however less thick than with *Sp. Nitri*.  
Much the same was exhibited by the Juice of  
*Bistort*.

7. *Spir. Salis.* The Colour much blacker  
than with *Sp. Salis dulcis*. The Mass much of  
the thickness of a *Syrup*. *Feb. 13.* Still the  
same.

8. *Spir. Vitrioli Philosoph.* There arose a  
Fermentation. The Coagulum of an Ash-Colour.

9. *Acetum destillatum.* A very slight Coagu-  
lum. The Colour darker than in pure Blood.  
*Feb. 13.* The Coagulum stronger, and more  
approaching to a blackness.

10. *Tinct.*

10. *Tinct. Antiphthifical.* Almost the whole Mass concreted into *Grumi*. The Colour very dark. *Feb. 13.* The *Phænomena* the same.

11. *Spir. Vitrioli.* The Mass very thick, and of a muddy Colour.

12. *Balsam. Gilead.* The Blood very much inspissated, and almost turned putrid.

13. *Sal Chalyb.* The Blood was coagulated, tho' some part of it was still fluid. The same was done altogether by *sal Vitrioli*.

14. *Sacch. saturni.* A moderate concretion, the Colour however pretty lively.

15. *Sal. Prunell.* The Mass somewhat grumous.

16. *Succ. Alchimilla.* There was precipitated a black and grumose Mass; the other part pretty fluid.

The following *Experiments* were likewise made with the *Serum* of human Blood: with which was mixed.

1. *Decoct. Corticis Granator.* The Serum somewhat concreted. The same was done by the *Decoct. Tormentilla & Bistorta.*

2. *Tinct. Corallii.* The Serum was coagulated.

3. *Spir. salis.* A small part of the Serum concreted; the rest thin and liquid.

4. *Spir. Nitri.* A strong Coagulum. Half the Serum however remained fluid. The same was likewise afforded with *Spir. Nitri Bezoart.*

5. *Oleum Vitrioli.* A Coagulum subsided to the bottom. The greatest part of the Liquor not at all concreted,

6. *Spir.*

6. *Spir. Nitri dulc.* No change, but that the Serum grew white.

7. *Spir. salis dulc.* The Serum was coagulated; yet some part of it was still liquid.

8. *Tinct. Antiphthisica.* The Serum became very turbid, and in some measure concreted.

9. *Aqua Fortis.* A white Coagulum. The same from a mixture of *Spir. Vitrioli Philosoph.*

10. *Aqua styptica.* The Serum was very strongly concreted.

11. *Tinct. Terræ Japon.* A red Coagulum.

12. *Solutio salis in aq. com.* A concreted Mass of a white Colour. The rest was exhibited by a *solution of Nitre in Water.*

The Reason is clear, from these Experiments, why *Astringents*, such as are things drawn from *Nitre* chiefly, and *Salt*, promote a *Diuresis*, for since they so *coagulate* the Blood, as to leave a great part of the *Serum* at the same Time untouched, it comes to pass, that the Blood-Globules being thus *coagulated*, the *serous Liquor* is easier separated from them, and passed thro' the *Kidnies*. After the same manner as if *Milk* should be *coagulated* by *acids*, the *serous Parts*, which were before promiscuously united with the *oily*, are separated and divorced.

III. The *coagulating Quality* of *Astringents* will be farther shewn, by mixing them with *Syrup of Violets*. For as those things, which turn *Syrup of Violets* of a *green* Colour, ought to be ranked in the Class of *Alkalies*; so also whatever gives a *red*<sup>a</sup> Colour, is to be account-

<sup>a</sup> *Boyle de Color. p. 3. 95.*

ed an *acid*. The same Colour arises also from the mixture of *acids*, if in the room of *Syrup of Violets*, a solution of *Heliotrope* be made use of, or a Paper stained with the *blew* Tincture of *Heliotrope*, as D. *Tournefort* has shewn us <sup>a</sup>. But that the Humours concrete upon the mixture of *acids*, is abundantly shewn by those Experiments, which we already related. *Astringents*, therefore, being mixed with *Syrup of Violets*, the Colours arose after this manner.

1. *Ol. Vitrioli*. The Colour red and flaming.
2. *Sp. Nitri*. The Colour still brighter.
3. *Sp. salis*. The redness still more flaming and in a manner fiery. The same with *sp. salis dulc*.

4. *Sp. Nitri bezoart*. The Colour red, but not so deep as in the former.

5. *Sp. Nitri dulc*. The Colour purple. The same from *Tartar vitriolate*.

6. *Sp. Vitrioli Philosoph*. The Colour the same as in the *Caryophyllus silvestris*. The same was exhibited by a solution of *Quicksilver in Aqua Fortis*.

7. *Aqua Fortis*. The Colour first of a pale-purple and pellucid, afterwards very red. But by dissolving *Tartar* in *Aqua Fortis*, there arose a very elegant Colour, such as is seen in *Cherries*.

8. *Tinct. Antiphthistica*. A Colour a little different from blew.

9. *Aëris in spir. salis solut*. The Colour red, yet faint and dark.

<sup>a</sup> *Pres. Histoire des Plantes aux environs de Paris.*



10. *Aris in aq. fort. solut.* The Colour yellow, but obscure.

11. *Plumbi in ol. vitrioli solut.* A very faint red.

12. *Plumbi in aq. fort. solut.* A pretty bright red.

13. *Sp. Vitrioli.* A scarlet Colour. The same was exhibited by *Elix. Vitrioli Mynsichti.*

Thus in the other mixtures of *Astringents*, if so be there was any change of Colour in the *Syrup*, it inclined wholly to red. A few Drops of *Ol. Tartari per deliq.* being dropped into the red mixtures, excited a *Fermentation*; which being over, the Colour was changed into a green; which was so much the greener, as the redness was more intense before the mixture of the Oil of Tartar. Thus by mixing *Ol. Vitrioli* with *Ol. Corn. Cerv. Lavend. Carui, Caryophyll. Nucis Mosch. Roris Marin.* the Colour was ruddy and sanguine: which, however, by the pouring on of *Ol. Tartari*, or a solution of Tartar in Vinegar, lost all its redness, tho' at the same time it did not much incline to a greeness.

IV. That Astringents coagulate the Blood, is proved by those Experiments, which are made with a Syringe.

I. Into the jugular Vein of a Dog was injected *Sp. Vitrioli* 3iss. In a short time he was seized with a Dyspnoea; afterwards, the Lungs labouring very much, the Dog died Convulsed. In the Veins the Blood was greatly inspissated and concreted, yet so unequally, that a great part of the Serum seemed to be free from any Coagulum.

**Coagulum.** The Ventricles of the Heart were stuffed up with a Mass grumose, and as it were polypose.

There stagnated in the Lungs some black Blood, which being also extravasated adhered to some of the Lobes. The same *Spirit* of *Vitriol* being infused into a Dog, which had a little before taken *Laudan.* 3 ii. so altered the Crasis of the Humours, that the Blood, which just before flowed forth very liquid upon opening the Vein, was now concreted into *Grumi*.

The same was done by *Sp.* of *Nitre* and *Salt*, except that the *Grumi* cohered less together.

2. I injected into the *jugular* Vein of a little Dog 3 ii. of *Sacchar. Saturni*, dissolved in 3 ss. *Decoct. Cortic. granat.* Immediately his Heart began to faint, so that putting my Hand upon the Thorax I could hardly perceive its pulsation: the Respiration difficult and short; and, being afterwards seized with Convulsions, in five Minutes time expired. The *jugular* and *iliack* Vein being opened, the Blood flowed partly fluid, partly grumose and tenaciously concreted: a sort of Oil swam on the Top, which also in the Taste resembled *Sacch. Saturni*. The Blood was so concreted in the Aorta, that it almost became fibrous. The Lungs were filled with coagulated Blood, and in some places also inflamed. In the Heart all the Blood was so concreted, that it seemed to grow to the *Columns* of the Ventricles.

3. Into the *jugular* Vein of a great Dog was injected, at twice, 3 ss. of *Sanguis Draconis* dissolved

solved in warm Water. The *Systole* of the Heart, and Respiration quicker; afterwards the Dog fell down dead suddenly without any terrible Symptom. The Muscles were in a little time seized with Spasms, so that both to the sight and touch they were found to constringe and relax themselves alternately. The *jugular* Vein being opened towards the Head, the Blood flowed out spumose, and half of it separated into *Grumi*. The *iliack* being cut, it was wholly concreted into a solid Mass, and its parts strongly compacted, as if Wax had been injected, accurately answering to the Cavity of the Vein, the slender Vessels, which run over the external Coat of the Kidnies, very conspicuous to the Eye. The Lungs were swelled with the concreted Blood. The Heart was immoderately distended with Blood: which in the right Ventricle resembled a *Jelly* in thickness, in the left it was more firmly concreted.

4. I injected into the *jugular* of a Dog 3 ii. of *Vinegar*. The contraction of the Heart something quicker; as for any thing else, there was no change in the Dog. Afterwards, the Injection being repeated in like manner to two Ounces, the Respiration was difficult and laborious: which yet, by opening the *iliack* Artery (whence run out a great deal of Blood somewhat grumose) was restored to its wonted rule. At last, two Ounces more being injected, the Animal expired. Upon opening the *iliack* Vein, the Blood broke forth very thick, and condensed into a Mass: in the other Veins, as well as

in the Arteries, it was lightly concreted; in the Heart, especially in the left Ventricle, some part of it strongly coagulated.

5. There was immitted into the *jugular* Vein of a Dog 3 fs. of *Spir. salis Dulc.* whence a strong and sublime Respiration, which at length so sensibly failed, that the Dog died even before the Injection was finished. The Muscles of the Abdomen being cut transversly, the Fibres started asunder. In all the Veins and Arteries the Blood was very much concreted. The Lungs inflamed. The Heart stuffed, and as it were stretched out with Blood. Out of the right Ventricle were taken 3 iv. of Blood concreted like a *Jelly*. In the left a little Blood, but strongly coagulated: out of the Aorta it came forth in a manner Polypous. The same was done in another Dog by injecting 3 i. of *ol. Terebintb.* except that the Lungs were of a dark-red Colour, such a one as is seen in a fried *Liver*.

6. Into the Jugular of a Dog was injected 3 fs. of *sal Chalybis* dissolved in 3 ii. of Water after a most violent Palpitation of the Heart and Dyspnoea the Animal died. Upon cutting the iliack Vein, the Blood indeed was not concreted, but somewhat grumose. Thus in the Heart and Aorta the Blood contracted something of a Coagulum, though much weaker than in the other Experiments.

But that it may be still more evident, that *Emmenagogues* and *Astringents* have those Properties we have ascribed to them, of *attenuating*, for instance, and *coagulating*, it may not be



be amiss to relate some Experiments, from which it will be very manifest, that those Medicines act reciprocally upon one another, in the manner laid down by us. To those Mixtures therefore which were made in *Seç. 2.* of *Blood* and *Emmenagogues* were added these *Astringents*.

1. To the *mixture* (of *Blood* and *spir. salis Armon.*) was added *spir. salis*. The Mass wholly coagulated. The Colour muddy.

2. To the *mixture* (of *Blood* and *Decoç. sabin.*) *sp. Nitre bezoarti*. Half the Liquor concreted into a Mass somewhat hard; the rest continued fluid: but it seemed to be nothing else than a part of the *Spirit* which was poured on, and that remained after the Coagulation.

3. To the *mixture* (of *Blood* and *Laud. liq. syd.*) *ol. Vitrioli*. It turned into a very thick Mass; the Colour brown and dark.

4. To the *mixture* (of *Blood* and *Panacea opii liq.*) *spir. salis*. It strongly concreted. The Colour a dark-red.

5. To the *mixture* (of *Blood* and *aq. Rutæ*) *spir. salis dulc.* The Liquor coagulated and concreted into *Grumi*. A russet Colour.

6. To the *mixture* (of *Blood* and *spir. salis Armon. succinat.*) *spir. salis*. A Fermentation arose. The Liquor ran partly into *Grumi*, and remained partly Fluid.

7. To the *Mixture* (of *Blood* and *aq. Absin.*) *spir. salis*. It concreted immediately into a very black Coagulum.

8. To

8. To the *mixture* (of *Blood* and *spir. C. Cerv.*) *Ol. Vitrioli*. A Fermentation and Concretion pretty strong.

9. To the *mixture* (of *Blood* and *Decoct. Marubii*) *spir. salis*. It exhibited the same as the former Mixture with *Ol. Vitrioli*.

After the same manner, for experiment sake, were *Emmenagogues* poured upon those *mixtures* which were composed in *Sect. 2.* of *Blood* and *Astringents*.

1. Upon the *mixture* (of *Blood* and *sp. Nitri dulc.*) *Panacea Opii liq.* The Mass was reduced again into a Fluid. The same was also done by *Panacea* poured upon

2. The *mixture* of *Blood* and *spir. Nitri Bezoart.*

3. Upon the *mixture* (of *Blood* and *Ol. Vitrioli*) *spir. salis Armon.* It fermented. The Mass much thinner, though it lost nothing of its blackness.

4. Upon the *mixture* (of *Blood* and *Aq. Fort.*) *Aq. Rutæ.* The whole became liquid.

5. Upon the *mixture* (of *Blood* and *spir. salis*) *Panacea Opii.* The thickness was wholly removed, and the Colour became florid.

6. Upon the *mixture* (of *Blood* and *sp. Vitrioli Philosoph.*) *spir. salis Armoniaci.* The Crasis very fluid. The Colour dark-red.

7. Upon the *mixture* (of *Blood* and *Acet. destill.*) *spir. salis Armon.* The same rare Texture, and lively Colour as in natural Blood.

8. The same was also exhibited by mixing *spir. salis Armon.* with the mixture of *Blood* and *Tinctura antiphthifica.*

I suppose it is now sufficiently clear that the *Cohesion* of the *Blood* is variously changed by *Emmenagogues* and *Astringents*; that by these it is made more *tenacious*, and by those *more rare*. In which change of the *Cohesion*, according to my apprehension, solely consists all the *Vertue* of *Alteratives*; tho' that transition into the various compactures of the *Humours* is done by degrees, not in the least subject to our Senses. To explain the causes of *Cohesion* and *Fluidity*, as it would be a Work very prolix and laborious, so also very foreign to my Design: for that province belongs rather to the *Philosophers*; it is sufficient for a *Physician* to conceive and comprehend in his Mind the most *immediate* Causes, and no ways necessary to enquire into the more *remote*.

THUS, at length, is this enquiry finished into the Nature of the *Menses* and their Cure; in which, indeed, I am far from pretending that the *Menses* could not be more accurately investigated, being, at the same time, confident that they are no ways explicable upon any other Principles. According to that share of Philosophy I am master of, I have endeavoured to deliver a true and perspicuous *Theory*: whose Fabrick indeed, if it be contracted, however answers to that matter I was supplied with. I am well satisfied that those Persons, who are better skilled

skilled in the *Mechanicks*, in which I confess myself to have been but little conversant, may add many things, not only for the Ornament of this Work, but also the Support of it.

Many perhaps may be found, who, because they are not accustomed, or not willing, or not able to investigate the causes of Diseases, will reckon all *Theory* of Physical Matters entirely useless in *Practice*; and some also condemn it as dangerous.

It is possible indeed, and what I do not deny to have sometimes happened, that those Persons have not been so happy in their *Practice*, who have gained great Reputation by their Improvements in the *Theory*; for being wholly engaged upon this, they may perhaps have neglected that; indeed they so much require each others Assistance, that no one can deserve greatly of Physick, who does not conjoin them both. But what can be more absurd than to imagine that a Physician, the better he understands a Distemper, will be so much the more unsuccessful in attempting the Cure? That he who sees clearly into the origin of an Indisposition, should seem the more incapable of rightly applying a Remedy? As if a more extensive knowledge of things was an hindrance, or that he indeed should undertake the most happy Method of Cure, who is altogether ignorant, why one Method should be pursued rather than another. Surely, if any one should be better qualified than the rest to remove Diseases, he will succeed more happily in this Work, who well knows their sources, and who



is entirely acquainted with the various Nature of the Humours, whence they arise; and thoroughly investigated that Law, by which Nature either preserves or vitiates the Crasis of the Blood. For by this is the sagacity of the Physician known, namely, by his acute judging of the Genius of a *Distemper*; to describe forms of *Cure*, is in the power of almost every Labourer in Physick.

But, say they, Diseases have been happily cured by Persons, who are not at all instructed in the *Theory*, who neither understand the make of the Body, or the manner in which Remedies operate within that Body. But if any should remark, upon examining their *Practice*, how unseasonably most Medicines are applied, how many, and those very contrary, things are given, even to a loathing; he will acknowledge that the Apothecaries are greatly obliged, but that their Patients very little to them. For, since they are not sufficiently acquainted with the reason of the *Distemper*, or any certain Method of *Cure*, they run thro' almost the whole *Materia Medica*, well knowing that they must go several ways to work, lest one possibly might not succeed. But whoever is so conversant in *Statics* and *Anatomy*, as to be intimately acquainted with the human Body, and thoroughly knows the Nature and Powers of the circulating Fluid, will easily discern which is the true Indication of the Disease, and what Method of *Cure* ought chiefly to be pursued: Such a one meets with no difficulty in the various store of Drugs, but chuses some certain

tain ones, the most proper for his purpose, and is determined with himself long before, upon the order which he ought to follow in prescribing them.

Those Persons who have been employed in a long *Practice*, are so instructed by Experience, that they may successfully undertake the Cure of a Distemper, tho' entirely ignorant of a rational Scheme of Physick: nor, indeed, is that surprizing, since the same Diseases oftentimes recur, as it were, in a round. But if any new Distemper should arise, and such an one as our *Practitioner* never saw before, this experienced Gentleman would be much at a loss, and turn over old Commentaries for a long while in vain, whence he can borrow no light, which will help to explain this new Symptom. On the other hand, he who has, a perfect acquaintance with the Causes of Diseases, and the Force of Nature, will be less surprized if any unusual Case should happen; but accommodating that Idea which he has already formed in his Mind about Diseases, to this Case, he will easier discern what is the origin of that Disorder, and what Method of Cure ought to be followed.

For he that is entirely unacquainted with the *Theory* of Physick, does not so much distinguish between the Diseases themselves, as the *Names* of Diseases. Which Error indeed, as it is often found in Physicians, so is it very prejudicial to Physick. In a Fever, for instance, the same Symptoms are oftentimes found, when the cause of the Disease is various, and the state of the Hu-

mours very dissimilar: for one sort of Fever arises from a *Redundancy*, another from a *Rare-scence*, and a third from a *Lentor* of the Blood; so that it requires a different Method of Cure, according to the variety of the Causes. But that *nominal* Physician being sent for, if he judges this Distemper ought to be called a *Fever*, pursues the same Method of Cure, whatever difference there may be in the Cause of the Symptoms: which Method indeed, whoever pursues, if he Cures, he will be certainly happy, but not over skilful in his own Profession. But the *rational* Physician explores not so much the Name of the Disease, as the Nature, his chief endeavour being accurately to find out the state of the Blood; whence also he seeks no vain Tokens of his Remedies.

There is another thing likewise, wherein the mere *Practitioner* is deficient, namely, the *application of Medicines*. For since he neither knows whence Diseases arise, nor in what manner Medicines act upon the Blood, he only applies those Remedies to the Diseases, which he has found by long Experience to be useful. But since it is rather wanted in Physick, to apply even to less common Distempers the most excellent Medicines, than to find out new; the *rational* Physician only will supply this defect, who is so well apprized of the Strength, both of the Disease, and of the Medicines, as clearly to discover their mutual relation to each other: Thus, by some new Artifice, will he extend those Medicines to many other Diseases, which

Use

Use has perhaps arbitrarily determined as *specifick* in one or two.

Some will fiercely contend against *Theory*, and affirm it to be of little use in explaining Diseases, because it cannot be accomodated to all. But this certainly is an Argument of an unskilful Disputant; as if, because a *Theory* could not obtain in all Diseases, therefore it could in none. It is something to have gone thus far; in illustrating, some indeed, it has so happily proceeded, that it seems easy to be carried farther, if the Industry of Physicians was answerable to their Abilities. We confess indeed that this *Theory*, which we are pleading for, is of little service in Physick, unless also it be added to frequent *Practice*; which, yet, if it be directed by this guide, will be less liable to those Mistakes, which are otherwise guarded against in vain.

All these things indeed were both known and practiced by the Ancients; nor does *Hippocrates*, that most happy *Practitioner*, suppose that the manner of Diseases and their Cure can be so well explained upon any other Principles: he therefore chiefly recommends to his Son *Theſſalus*, who applied himself to the Study of Physick, *the knowledge of Numbers, and the properties of Figures; and to take much pains in that Science, which teaches them, and measures any Magnitudes whatever* \*. For he allows them to be the only Springs, whence the true Knowledge of physical Matters can flow. And

\* *Epist. ad Theſſal.*



it is indeed very credible that these *Elements*, which he so vehemently exhorts his Son to learn, were perfectly known to himself. For he was a Pupil and Follower, as we read, of *Democritus*; who, at that Time, taught that *Philosophy*, which is at present called the Mechanick, and which is so far from being Modern, as it is commonly thought, that it is the most Ancient of all. *Hippocrates*, being thus instructed in this Science, both observed and understood Nature most accurately: and because those Histories he has wrote of Diseases, are the most consonant to Nature, therefore also are they reckoned the most excellent. And upon this account I think this Work has received no small support, since I have every where produced *Hippocrates*, as the Patron and Advocate of my Opinion.

---

## E R R A T A.

**P** Age 3. line 17. after *return* add *with*. Page 50. l. 17. after *Blood* read *since then*. Page 101. l. 25. for *those* r. *them*. Page 171. l. 28. dele *it*. Page 176. l. 31. for *incline* r. *incide*. Page 196. l. 23. for *Chalybeatus* r. *Chalybeates*.



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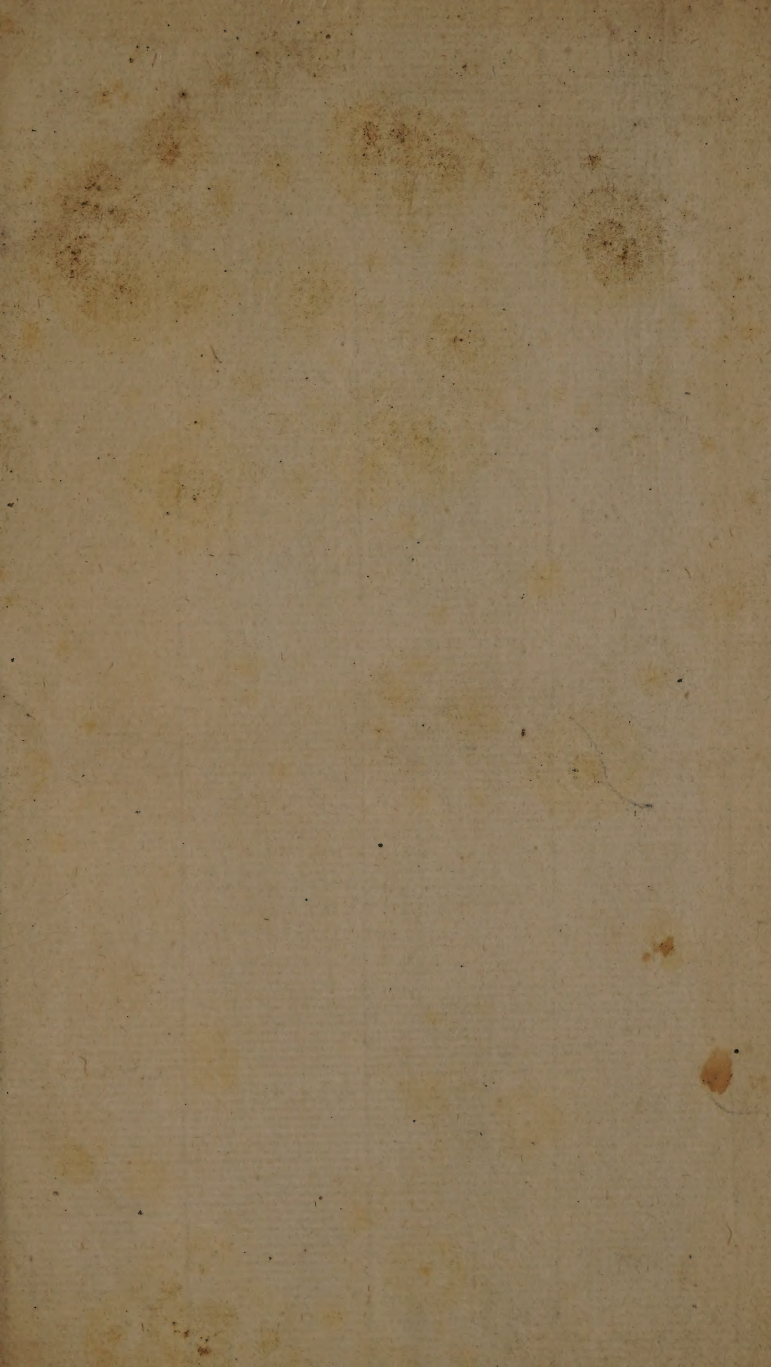
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